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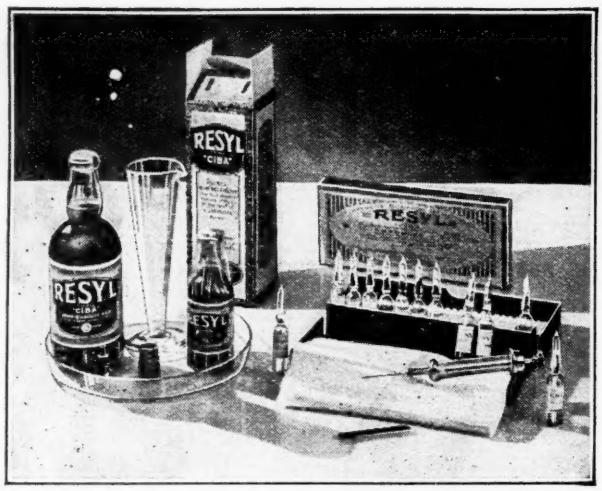

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Observations

ON THE

HISTORY OF PHYSIOLOGY IN GREAT BRITAIN DURING THE LAST HUNDRED YEARS*

BY

SIR E. SHARPEY-SCHAFER, M.D., F.R.S.,
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A century ago physiology was to all intents and purposes non-existent in England. There was no laboratory of physiology in the whole of Great Britain, nor any one person whose business it was to devote himself wholly to teaching and research in physiology. In certain universities of Scotland there were professors of the "institutes of medicine"—a term which is generally regarded as the equivalent of physiology—but the occupants of these chairs were not physiologists; they were always practising physicians. Nor was it until fifty years later that it was considered necessary for the occupant of such a chair to be a physiologist. On the Continent, especially in France and Germany, physiology was more advanced; in Paris and Berlin there were established chairs occupied by notable physiologists. This neglect of physiology in Great Britain is the more remarkable when we remember that the foundation of physiology was laid in England 200 years previously by William Harvey, and in the intervening period had been substantially built upon by Stephen Hales, John Hunter, and William Hewson. But there was no organized investigation; each person worked independently. Physiology was looked upon as little more than a branch of anatomy.

The First Chair of Physiology

It was rather less than a century ago and in the new University of London—soon to become better known as University College—that physiology, at that time dormant in England, was reawakened. University College, although founded in 1828, did not at first undertake the teaching of medicine. When its hospital was built a faculty of medicine was added and a regular medical curriculum established. But there was no separate chair of physiology; such teaching of the science as was thought necessary was entrusted to the professor of anatomy, who was himself a practitioner. The same condition obtained in all the medical schools of the time; although some were of old standing, none had recognized the importance of physiology as the basis of medicine, or had encouraged its special study by engaging the services of whole-time teachers of the subject or by establishing laboratories in which research could be conducted. Anatomy was looked upon as the only subject of which a thorough preliminary knowledge was needed for the practice both of medicine and of surgery.

It was not until 1836 that a special chair of physiology was established in any medical school; in that year the authorities of University College decided that the time had come for the founding of such a chair. But it was not possible at the time to obtain a trained physiologist to occupy it; there were none in the kingdom. The difficulty was, however, successfully overcome. William Sharpey had already a considerable reputation as a teacher of anatomy in the extramural school of Edinburgh. He was essentially an anatomist. His whole training had been in anatomy, which he had studied assiduously in Berlin and elsewhere. He had acquired, however, a sound theoretical knowledge of physiology and had devoted attention to comparative physiology; he was also known to be an impressive teacher and he had a sound basis of common sense. His father was English, his mother Scotch; he combined in his character the best features of both races. The medical faculty of University College had been largely recruited from Edinburgh, and this contributed to the decision to invite Sharpey to occupy the new chair. A large part of his teaching was pure anatomy; the course was termed "general anatomy and physiology." The term "general anatomy" came to be a synonym for histology, and Sharpey included details of the anatomy of the viscera which are nowadays left to anatomy. He recognized that an intimate knowledge of structure ought to precede the investigation of function, and being, for his time—it was before the period of microtomes and staining methods—a remarkably sound observer, a considerable part of his course was devoted to the minute structure of the cells and tissues of the body.

In recognizing the close relation between histology and physiology Sharpey was not alone. Many physiologists have contributed to the advancement of the study of microscopic structure, and some of the best histologists have also been good physiologists. It has been the practice of late to break away from this traditional association and to ignore the assistance which physiology gains from microscopical observations; but the investigation, by micromechanical means and in artificial cultures, of the physiology of the living cell has tended to restore the association between physiology and histology—to their mutual benefit. Although Sharpey had not the advantage of a physiological training, he was an extensive reader and had a sound theoretical knowledge of the science. He was well able to impart his knowledge to an audience of students; no one could listen to him without being impressed by the clarity of his exposition and by his methods of explaining how any problem was to be dealt with or how a particular experiment was performed. He himself had no apparatus except his microscope. He had never used a kymograph, but he would illustrate how a record of blood pressure or of muscle-contraction was made, with the aid of what Michael Foster once termed "his dear old chimney-pot"—a form of headgear which everyone wore in those days, students as well as professors, and which, at least in this case, served a useful purpose. His knowledge of the history of physiology was—like Sam Weller's knowledge of London—"extensive and peculiar," and few things help more to make a subject interesting than appropriate references to its history.

If I have dwelt at some length on Sharpey it is partly because he was my own teacher, but chiefly because of the influence he had on the spread of physiology in Great Britain. He early recognized the importance of the practical study of the subject, and induced the Faculty of Medicine to institute a course of practical instruction. George Harley, a London physician who had studied physiology and chemistry in Paris, was first appointed to carry out such instruction, but he found before long that the claims of practice were incompatible with this duty. Looking round for a successor to Harley, and perhaps to himself, Sharpey chose a young man, Michael Foster by name, who had been a distinguished pupil of his, but was at this time assisting his father in a general practice in Huntingdon. Michael Foster was easily persuaded to give up practice and devote himself to science, and he became the first professor of practical physiology in University College, a chair having been created especially for him. He did not hold it for long; he was soon invited to Cambridge, where, on the advice of Humphry, who was endeavouring to establish a complete medical school in that University, a prelectorship of physiology was instituted by Trinity College.

[3747]

*Read in opening a discussion in the History of Medicine Section at the Centenary Meeting of the British Medical Association, London, 1932.

The teaching of physiology at Cambridge was attached to this prelectorship, and it was not until 1883 that a university chair of physiology was created, Michael Foster being its first occupant.

On the transference of Foster to Cambridge the authorities of University College invited Burdon-Sanderson, who was at that time assistant physician to the Middlesex Hospital and had shown a predilection for physiological and pathological investigations, to occupy the chair, with the understanding that, on Sharpey's retirement, which was imminent, he should succeed to a combined chair of physiology and practical physiology. It is an interesting fact that, although neither Michael Foster nor Burdon-Sanderson had received any laboratory training—such work as they had been able to accomplish having been performed in private laboratories with limited resources—they were nevertheless instrumental in building up a school of practical physiology which has proved second to none, and the influence of which has spread far beyond the confines of our own island.

The Cambridge School

When Michael Foster moved to Cambridge there went with him a young Irishman named Martin, who had been his assistant at University College, and who eventually went to Baltimore as the first professor of biology in the newly established Johns Hopkins University. Through his influence and that of his pupils and fellow workers the traditions of the University College and Cambridge schools were carried to the United States. It was not long before Foster attracted to his subject some of the best brains in the undergraduates at Cambridge. Prominent among them were Francis Maitland Balfour, who became eminent as an embryologist ; Walter Gaskell, whose researches on the physiology of the heart are classical ; George Romanes, who, working in his private marine laboratory in Ross-shire, discovered the presence of a nervous system in coelenterata ; John Newport Langley, who elucidated many important problems connected with secretion and the sympathetic nervous system ; and Charles Scott Sherrington, who carried the tradition of the Cambridge school successively to St. Thomas's, to Liverpool, and to Oxford. (I may mention, as showing the progress which physiology has made, that Sherrington was the first physiologist to become president of the Royal Society.) Foster's staff was recruited by many other workers whose names have since become familiar, and not the least among them was a young graduate of London, Frederick Gowland Hopkins, who became the first professor of biochemistry in Cambridge, and is the second physiologist to occupy the presidential chair of the Royal Society.

Michael Foster himself for many years acted as biological secretary to the Royal Society in succession to Sharpey and Huxley. He took an active part in founding the Physiological Society in 1876, and was instrumental in establishing the series of International Physiological Congresses, the first of which was held at Basel in 1889. He also started the *Journal of Physiology*. On his retirement in 1903 he was succeeded by Langley, and on Langley's death in 1925, another of Foster's pupils, Joseph Barcroft, succeeded to the chair and is still its occupant. Under these three men the influence of the Cambridge school has become world-wide. Its alumni occupy posts in all parts of Great Britain and in her offshoots. The part they have taken in promoting the progress of the science emphasizes the debt British physiology owes to Michael Foster, and, through him, to William Sharpey.

University College School

Returning to University College, London, we have seen that Sharpey and Michael Foster were succeeded in 1870 by Burdon-Sanderson. Sanderson divided the duties of the professorship with me—I was appointed assistant professor in 1874—and I succeeded him in 1883, when he was appointed to the newly established Waynflete professorship at Oxford. On my transference to Edinburgh in 1899 Ernest Starling became my successor at University College, with William Bayliss as coadjutor, and on Starling's appointment to one of the Foulerian research professorships of the Royal Society, he in turn was succeeded by Archibald Vivian Hill. On Hill's appointment to another of those professorships, he was succeeded by Lovatt Evans, who still occupies Sharpey's chair. Under these successive occupants the University College school of physiology has been equally successful with that of Cambridge, both in the production of original work and in furnishing, directly or indirectly, trained physiologists to take over the teaching of the subject in other centres—for example, Halliburton at King's College, Leonard Hill at the London, Francis Gotch at Liverpool and Oxford, Benjamin Moore at Liverpool, MacWilliam, Waymouth Reid, and Herring in Scotland, and Milroy, Thompson, and Pringle in Ireland. By others, too numerous to mention, the traditions of the British school have been carried to Canada, Australia, New Zealand, and indeed to all parts of the world.

Emergence of Biochemistry

Although I have dwelt chiefly on University College and Cambridge as furnishing the nuclei from which the larger number of British physiologists have proceeded, the important work that has been carried on in other institutions and by independent investigators must not be forgotten. Notable among the latter are Frederick Pavy, Arthur Gamgee, Sydney Ringer, David Ferrier, Leonard Wooldridge, John S. Haldane, and Augustus Waller. But in the time at my disposal it is impossible even to enumerate the physiologists of British nationality who during the last century, and especially during the last fifty years, have contributed to the progress of the science ; equally impossible is it to mention the special subjects to which they have individually contributed. I should be merely furnishing a list of titles were I to attempt to specify the histological, chemical, and physical researches which have characterized this most active period of British physiology. But two subjects especially strike the imagination on account of their novelty. They are: (1) the internal secretions, which half a century ago were unknown, although their study now constitutes an important part of physiology and has bearings on all branches of medicine ; (2) the vitamins, the " accessory food factors " of Hopkins. Both present chemical problems and are bound up with an intimate knowledge of the chemistry of the body. It is therefore not surprising that chemistry now dominates physiology ; physiologists and pathologists require to be as highly trained in chemistry as hitherto in physics. A hundred years ago comparatively little attention was paid to biochemistry ; such investigations as were then conducted related mainly to the physical problems of physiology. Not that the latter are at the moment neglected ; researches on muscle, on the nervous system, on the circulation and respiration, on the sense organs, and on the electrical conditions accompanying every function, are carried on more actively than ever. But these are extensions of the kind of research which has been proceeding since physiology emerged as a distinct science. On the other hand, the action of the internal secretions and of the vitamins, and the influence even of small variations in the composition of the blood on the activity of the tissues and organs, are altogether new subjects of investigation ; the commencement of their study is within the memory of most of us. Biochemistry is now recognized as one of the main branches of physiology, and in most universities is taught from a separate chair. We rejoice to know that in

this and in all other parts of physiology Great Britain is holding her own. But no science, least of all those on which medicine is based, belongs to one country, and neither we nor any other nation can claim to occupy a pre-eminent position in physiology such as might have been granted us three centuries ago as the result of Harvey's epoch-making discovery.

OCULAR MANIFESTATIONS OF LESIONS OF THE FIFTH CRANIAL NERVE *

BY

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The Gasserian ganglion is the trophic centre for all the sensory branches of the trigeminal nerve, the most important somatic sensory nerve of the body. It corresponds with a posterior root ganglion of a spinal nerve, and, like it, lies outside the central nervous system. From each cell body in the ganglion a single fibre arises which bifurcates, sending one branch centrally to the nucleus in the medulla and one to be distributed to the tissues, and any pathological process in these cells may be referred to the corresponding point of its peripheral distribution.

The ganglion may thus be involved by the spread of inflammation from middle-ear disease, producing unilateral headache; it may be involved in a basic meningitis, or a tumour of the cerebello-pontine angle, or it may be implicated in inflammatory or neoplastic processes in any part of its peripheral course. Further, there can be no doubt that the trigeminal is of great importance in the production of headaches, and indeed Ivy Mackenzie goes so far as to say that the "physiological pathology of headaches may be reduced to a question of the irritation of the trigeminal nucleus in the medulla."

Referred Pain and Irradiation

In many respects the eye is the most convenient organ in the body for the examination and observation during life of diseased tissues, such, for example, as the blood vessels, the optic nerve, or the iris, all of which can be examined in a way that is possible with no other tissues, and, further, it lends itself to the examination of the phenomenon of referred pain. By referred pain is meant pain which is referred to a tissue which has no reason to produce it. It occurs as a result of excessive afferent stimuli ascending to the nucleus of the nerve from a diseased peripheral structure, and there irradiating so as to stimulate neighbouring nerve cells, the fibres of which supply the area which is the subject of the referred pain. On the question of irradiation Sherrington says, "If, by appropriate stimulation of the skin of the foot, the ordinary flexion reflex of the hind limb of the dog be evoked, the extent of the reflex increases with the increase in the intensity of the stimulus."

There is an exceedingly free interconnexion between any afferent channel and the congeries of arcs of the whole central nervous system. It is not surprising, therefore, that reflex reaction should spread; the extreme degree of irradiation may be seen after strychnine administration, for it is generally accredited that centripetal impulses passed in by any afferent nerve will then excite reflex discharge over the efferent channels of the whole nervous system. Further, it seems that limited irradiation tends to spread along certain paths with greater facility than along others, and this difference is probably referable to the difference in the facility of conduction at different synapses.

Referred pain is, on good grounds, believed to be an expression of irradiation in the nucleus of the nerve. Thus pain resulting from an inflamed iris will at first be referred to the iris. If, however, the inflammation in this structure becomes more severe or prolonged, so that the afferent impulses from it are augmented, a spread will occur within the fifth nucleus to immediately adjacent cells, so that pain now will be referred to the side of the nose or orbital margin, and, with further increase, the side of the face may share the extension of pain, or the meninges may be involved and cause headache, or vomiting may ensue from spread to the vagus centre.

There are two anatomical factors which facilitate the spread of the stimuli within the fifth nucleus and from one nucleus to the other. First, individual fibres of the primary neuron ascending and descending give off collaterals at different levels, and so constitute a bond of integration between different levels in the nucleus, and, secondly, there is a free communication between the two trigeminal nuclei, so that a close intercommunicating link is provided which associates together all the diverse tissues from which afferent impulses are directed to this nucleus.

Thus it comes about that a severe or prolonged stimulus may overflow the cells which are in immediate organic continuity with the inflamed tissues and involve first one, and later the opposite nucleus, till pain is referred to the whole territory of each nerve, and, overflowing further, may spread widely and cause more distant and diffuse manifestations.

We have already observed that the resistance to the spread of impulses may be greatly reduced by strychnine, so as to allow an efferent impulse almost free run of the whole central nervous system, and so also it would seem that the irradiation of painful afferent stimuli may depend not only upon the strength of such stimuli but also upon the condition of the brain tissues which receive them, and thus we may well believe that such factors as endogenous or exogenous toxins, of which we hear so much, and, I venture to think, too much, constitutional debility, whatever its source, or inherited instability of the nervous system, may be factors which are important in the dissemination of referred pain.

HERPES ZOSTER OPHTHALMICUS

It is probably unnecessary to remark that herpes cornea, with which dendritic and stellate corneal ulcers are closely allied, is connected by scarcely more than name with herpes zoster ophthalmicus.

The close relation which exists between herpes zoster and varicella is well established, and Le Feuvre[1] urges that "shingles should be recognized as an infectious disease, and one, under certain unknown conditions, likely to become a starting point for a chicken-pox epidemic." Until Jonathan Hutchinson's classical account of herpes ophthalmicus in 1866–7,[2] this disease had been confused with erysipelas, a mistake that is not quite unknown to-day.

In this connexion Hutchinson describes what, for this association, we may call an interesting domestic occurrence. In 1866 a plate representing herpes zoster of the head and face, which had been presented to the New Sydenham Society, excited a little amusement among some of the members. "Who," they said, "had seen the disease in such a part? Surely it was unnecessary to depict so rare and far-fetched a complaint." We may judge how little the disease was recognized. Hutchinson goes on to say, "Curiously, some one of the Council (Dr. Markham, who at this time was editor of our Association's *Journal*), who had had his joke on the

* Read in opening a discussion in the Section of Ophthalmology at the Centenary Meeting of the British Medical Association, London, 1932.

occasion, was himself, last week, pronounced by his friend Dr. Stewart (another of the unbelieving ones) to be a splendid specimen of that very disease we were joking about a month ago at the Council of the Sydenham Society."[3] Hutchinson adds, "Herpes zoster of the head and face, however, is no joke to the patient."

In the same way that the clinical aspect of herpes ophthalmicus was elucidated by Hutchinson, so also the pathology of the disease was placed on a secure basis by the work of Head and Campbell,[4] amongst whose cases were two in which the Gasserian ganglion was affected. They showed that the ganglion was in a condition of acute inflammation with profuse haemorrhages into it and its capsule. With respect to the changes in the ganglion, they showed that they depended upon the stage at which it was examined, and the severity of the disease. If, they say, the patient has died with the eruption still out, the affected ganglion will be found to be in a condition of profound inflammation. In the centre of the haemorrhagic areas the ganglion cells are absolutely destroyed. The greater the severity of the eruption, and the profounder the scarring, the more certainly will change be found in the ganglion. On the other hand, if the disease has not been severe, the inflammation may pass and leave no recognizable change in the ganglion. Thus, in one case, when the eruption was scanty and inflammation of the skin not severe, no change could be found in the ganglion 139 days afterwards. The degeneration is not limited to the ganglion cells, but spreads along the peripheral nerves and can be traced to the fine branches which pass upwards to the skin, and, in a severe case, the degenerated nerves are replaced by fibrous tissues: thus sclerosis was present in one of Head and Campbell's cases thirty days after the attack, and is, of course, permanent.

These pathological findings are in accord with clinical findings in the cornea, for in many mild cases no discoverable impairment of sensation of it occurs, whilst in severe cases loss of sensation may be sufficient to lead to the development of neuro-paralytic keratitis, though this is rare.

Its Clinical Aspects

Herpes zoster appears to be an acute specific disease, some product of which shows a selective activity for the ganglion cells; but, somewhat surprisingly, an eruption which is indistinguishable from it may also be produced by so strictly local an exciting agent as a trauma. General paralysis and tabes dorsalis predispose to its occurrence: de Schweinitz has seen it produced during the war by anti-typhoid inoculation, and arsenic is reputed to cause it. It starts with a prodromal period with fever, three or four days before the rash appears; and shows so close a parallel with anterior poliomyelitis that it has been suggested that posterior poliomyelitis would be an appropriate name for it.

With regard to age and sex incidence: Lodge,[5] in twenty cases, found the average age to be 55, and Elliott, in twenty-one cases, 41. Hutchinson, however, reports a case in a child aged 4, and I have seen it at the age of 6. There seems a general consensus of opinion that it takes a more severe form in the aged. Elliott's cases showed a marked preponderance of females: this sex preponderance, however, is not borne out by Lodge's or Hutchinson's cases. Recurrences are rare; Head and Campbell find only four second attacks among four hundred cases.

The first local manifestation of the disease is pain, of a burning or lancinating character, over the area, which three or four days later will be the seat of the rash. The skin phenomena are: Hyperalgesia with increased temperature, erythraemia, vesiculation, rupture of the vesicles, cicatrization, and anaesthesia. In some cases pain and irritation are severe and persist, and some degree of anaesthesia is usual. The ophthalmic division of the fifth gives a branch to the meninges before it enters the superior orbital fissure, involvement of which may cause intense headache and vomiting, and so meningitis may be simulated. The secretory fibres to the lachrymal gland come from the facial nerve, and so secretion of tears is not affected. The naso-ciliary nerve supplies a large area of the mucosa of the septum and the outer wall of the nose, and involvement of these branches is a common and unpleasant complication—it occurred in two-thirds of Elliott's cases.

The most important complications of herpes ophthalmicus, however, are those which involve the eye, and, were it not for these, the disease might be dismissed as an unpleasant and rather painful self-limited one. The ocular complications are: corneal affections, iridocyclitis, ocular palsies, optic atrophy.

From a general survey it would seem that intraocular complications occur in about 60 per cent. of cases, and Burton Chance[6] points out that they usually come on after the eruption has passed its acme. Hutchinson first made the observation that the inside of the eye became involved only when the naso-ciliary nerve was affected, as evidenced by a rash on the side of the nose. Bowman joined issue on this point and thought there was no connexion between them, and apparently as a consequence, at a later date, Hutchinson says, "My rule ought perhaps to be modified a little. It would, I think, be quite safe to assert that the eye scarcely ever suffers much when the nose is not affected, and the severity of the eruption in the one part is usually in direct relation with the severity of the inflammation of the other."

The occurrence of corneal involvement in herpes is referred to by Mackenzie in the third edition of his famous book. The cornea becomes the seat of patchy interstitial infiltration, from which permanent opacities are common: occasionally the surface epithelium is raised to form vesicles, and so small ulcers follow. Some degree of permanently impaired sensitivity of the cornea is common, and occasionally is so complete as to lead to the development of neuro-paralytic keratitis.

Iridocyclitis is frequent, with or without corneal involvement, and may result in the development of glaucoma; on the other hand a lowered tension often occurs. F. A. Juler reports such a case[7] where it was so low as −3, and the cornea was completely anaesthetic.

Associated Paralysis of Nerves

The first report of paralysis of one of the ocular nerves seems to be by Hutchinson in 1864.[8]

The paralysis—complete third nerve—cleared completely in a few weeks, and five years later Hutchinson says the pupil reacted normally and no trace of ptosis remained. R. B. Metz[9] collected fifty cases of ocular palsies complicating herpes, and the third nerve, either partial or complete, was involved in 74 per cent. of them. He remarks that recovery occurred in most. J. Ramsay Hunt[10] collected 158 cases of paralysis in herpes zoster of the whole body, and of them eighteen affected the third nerve.

Another important complication is optic atrophy; the first example I have come across of this is by Bowman,[11] in which, three weeks after the appearance of the rash, the left eye was quite blind from optic atrophy. In this case there was no paralysis of ocular muscles, and the distribution of the rash seems to have been a little unusual. It is described as being on the left half of the face, as low as the lobe of the ear, but not involving the ear, to the left temporal region, and a short distance above the brow. In one of Hutchinson's cases in which optic atrophy occurred he states that the stress of the disease had fallen on the nasal and trochlear nerves.

It would be interesting to ascertain whether optic atrophy was associated with some regular distribution of the rash. Other cases of this serious complication are

reported by Adams, in a man aged 35, by Paton, in a woman aged 67, and by Veasey,[12] in a case in which sight was lost on the seventh day of the disease. Sinclair showed a case, in a woman aged 57, at the last Congress of the Ophthalmological Society of the United Kingdom at Edinburgh. I have not come across this complication, and all the reported cases seem to have been seen only when optic atrophy was already present.

During an attack in which the cornea is affected it is not rare for nodules to appear in the sclerotic, due, it is presumed, to implication of the ciliary nerves.

Mayou[13] reports two cases in which this seemed to have occurred. G. W. Thompson[14] reports four more. He describes the appearance as small, sharply circumscribed, reddish nodules, somewhat flat and bossy, like episcleritis, the centre being translucent: they follow the corneal troubles, and persist after them. They clear up completely without disintegration or ulceration, leaving a small brown or slatey-blue discoloration of the sclera with the overlying conjunctiva adherent. Four other cases are carefully reported by Penman.[15]

Pathology

The pathology of herpes zoster raises the question of the occurrence of antidromic impulses.

In 1901 Bayliss produced dilatation of the vessels of the hind limb by stimulation of the dorsal roots of certain lumbar nerves, and believed that the passage of the stimuli was by sensory components of the nerve and due to their capacity for antidromic conduction: he expressed the view that afferent fibres bifurcate at the periphery, one branch going to sensory nerve endings, and one to the musculature of the arterioles. Sherrington says, "Trophic influence, in a direction the contrary of ordinary functional relationship and connexion, is very obscure. Herpes zoster seems to be a case of influence, so to speak, against the stream." It will be seen that he gives a very guarded acquiescence to the occurrence of such antidromic impulses, though such are not universally accepted.

The sequence of events in herpes zoster would seem clear: First, an acute infection producing an acute inflammation of the Gasserian ganglion, followed by pain referred along the fibres of the affected cells, and, four days later, the appearance of the rash. Ivy Mackenzie ascribes patches of vaso-dilation about the face and conjunctiva, associated with headaches, to antidromic impulses passing down the fifth nerve, and suggests that the inflammatory processes of herpes zoster are due to similar, but intensified, impulses. The connexion between the skin lesion and the nerve cannot be doubted, and if we are disposed to question the occurrence of antidromic impulses, may we not suppose that the products of the breakdown of the nerve fibres in the skin are sufficient to cause the eruption, or that the products of the breakdown of the ganglion cells themselves are conveyed along the nerve fibres to their skin terminations, and there produce the skin lesion; and in this connexion we may remark that there is ample proof that the toxins of tetanus and herpes febrilis may travel to the central nervous system by either motor, sensory, or sympathetic nerves; that is, the route may be antidromic—Goodpasture believes it is by way of the axis cylinders. I do not think the fact that herpes seldom follows injection of the ganglion with alcohol negatives these suggestions.

The Corneal Nerve Fibres

The posterior parts of the sclera are supplied directly from the ciliary nerves. Anteriorly the ciliary nerves form a plexus, from which a large number of fibres are distributed to the front part of the sclera behind the sclero-corneal junction, and from here some run forward into the cornea, and some backward to the sclerotic itself. The corneal nerves enter this structure at about the middle third of its thickness. The fibres form an anastomosis at the limbus, from which sixty to seventy branches run into the cornea, usually losing their medullary sheaths as they enter it.

The appearance of the nerve fibres in the cornea has been made familiar by the advent of the slit-lamp. They are easily seen, but I was not clear as to how frequently they were visible. I therefore made observations, and found that, out of 130 eyes, I was able to identify nerve fibres in 115 of them. This is so large a proportion that I have little doubt that it was for want of pertinacity that I did not see them in all, and I expect it may be said that they can always be found.

It will be seen that the branchings are dichotomous, forming narrow angles, for the most part of from 15 to 30 degrees and seldom so wide as 45 degrees, the angles themselves sometimes being bridged by fibres which, it seems, have run into one branch a short distance and have then retraced their course to reach the other branch.

Head and Campbell demonstrated degeneration in nerve twigs as far as the skin in the cases of herpes, but were not able to demonstrate degenerated fibres in the actual portion of the skin examined. I wondered whether it would be possible, by means of the slit-lamp, to be sure of the absence of nerve fibres in the cornea, or of any demonstrable change in them, either in herpes zoster or in neuro-paralytic keratitis. As is to be expected, they are visible in some cases of zoster, and, whilst in several I did not see them, I did not feel able to say that they were absent. After injection of the Gasserian ganglion with alcohol I have been able to find nerve fibres in the cornea up to two and a half years afterwards, and have failed to identify any abnormality in their appearance. A source of difficulty is the fact that in such cases the transparency of the cornea is so often impaired, but it is a point which should be explored further.

It is evident that a corneal section must divide the nerve fibres of supply to an area of the cornea.

I have made observations on 37 cases of cataract in an endeavour to discover how soon the sensitivity of the part of the cornea involved in the section is restored; the time of observation varied from forty-eight hours after the operation to thirteen years. It is obvious that at first a demilune of the cornea has its nerve fibres severed, and that consequently this portion will be anaesthetic. The restoration of sensation will be found to occur from below up, and seems to vary a good deal in its progress. The first evidence will be found in the form of hypersensitiveness at the angle of the demilune; the earliest date I have a note of this is the sixteenth day after section. Sensitivity now spreads upwards gradually, but I have no note where it was complete at the end of six months—the earliest time where I thought this might be said to be the case was ten months. On the other hand I have notes of cases where, after 1 year, 1½ years, 2½ years, 3 years, and 4 years, sensation still was a little impaired, and after much longer periods the line of section of the cornea and just below it will be found to be a little dull, and I doubt whether full sensation is ever restored to this area.

In this connexion I should like to refer to Tudor Thomas's beautiful work and, in particular, to his paper to the Royal Society last year, in which he made observations on the return of sensitiveness in corneal grafts. He showed that, of 29 successful grafts, 21 became sensitive, and 8 did not. The main points that he brings out are that, where the graft became vascularized, sensitivity was recovered and the graft was in great measure opaque; thus he says, "Of 29 grafts, 21 became sensitive and 8 were insensitive. Not one of the sensitive grafts was clear, and in most cases the opacity was pronounced; each sensitive graft was found to have become

vascularized." And again, "Of 7 that remained insensitive, 5 were clear, 1 was opaque, and 1 was partially opaque, after an average time of thirteen months."

The margins of the graft become sensitive before the centre, which is in accord with my findings and with what would be expected.

Neuro-paralytic Keratitis

Leslie Paton, with characteristic industry, discusses seven possible explanations of the development of neuro-paralytic keratitis,[16] and comes to the conclusion that no complete and satisfactory explanation is forthcoming. I do not propose to discuss an eighth possible explanation.

The chief controversy ranges round the question of the existence of trophic nerves, the destruction of which is responsible for the ulceration. Sherrington says, "Every nerve and nerve centre that can influence the proper and specific activity of a tissue possesses in so far a trophic influence on that tissue. If by trophic nerve be understood no more than this, all nerves are trophic nerves. That, on the other hand, any nerve directly modifies the nutrition of a tissue independently of inducing vascular changes in it, or influencing those particular metamorphoses of material for which the tissue is the machine specifically adapted, there is no proof." Duke-Elder suggests, in his recent excellent book, that the formation of histamine in the tissues is under the control of impulses passing antidromically down the fifth nerve; when therefore this control is eliminated the changes in the blood vessels and capillaries of the tissues, the so-called triple response of Lewis, no longer take place, and the so-called trophic changes in the tissues develop as a consequence.

Whatever may be the truth in this regard, there are certain facts that are clear.

Anaesthesia of the cornea alone will not produce ulceration, for, if the cornea be completely protected by a tarsorrhaphy, it does not develop. Further, after it has developed it is surprising how quickly healing takes place if tarsorrhaphy be done. Again, although, as has been said, a corneal section causes anaesthesia, I have not seen an ulcer arise on this account, though it is well known that exposure without anaesthesia readily produces ulceration. The patient who lies in a semi-conscious condition with the lids only partly closed, so that the lower part of the cornea remains exposed, is liable to ulceration of the exposed area. The patient with prominent eyes from Graves's disease or an animal with prominent eyes, such as the Pekinese dog, is predisposed to corneal ulceration from exposure. No doubt the insensitive cornea leads to a reduced reflex secretion of tears and frequency of blinking, and so provides an additional factor. My belief is that, when the ganglion is destroyed, the lids should at the same time be sewn together. I do not forget that, with care, no serious involvement will take place in a good many instances, and where it does occur, in spite of bandaging, I believe it is either because the patient's cornea comes into contact with the dressing, which, not being felt, is not resented, or that the patient rubs his eye. Nevertheless, tarsorrhaphy is so easily done—if done neatly it will not show the slightest deformity of the lids after separation—and is so certain in its results that I believe it should be done as a routine. My practice is to make raw the juxtaposed edges of the lids for about a quarter of an inch and a little to the outer side of the middle, avoiding the lash-bearing margin, and to join them by two silk stitches. I believe the bridge should be maintained for six months, but even after this period ulceration may take place on separation, and compel a resuturing.

I should now like to refer shortly to a special type of ulceration in which I believe a neuropathic element exists. Cases of it have been reported by Messrs. Neame, Balfour Barrow, Herbert Fisher, de Courcy, and myself.[17] During the war we were all familiar with the curious milky-white coagulated appearance of the conjunctiva which resulted from "mustard gas" poisoning. Now, many years after exposure to this gas, one still sees a condition which counterfeits very closely the appearance that was produced by the gas at the time of exposure. There is the same milky-white appearance of the conjunctiva, over which vessels run, producing a marbled effect. These vessels are in great measure characteristic, in that they are of a very irregular calibre, being now narrow, and now becoming widened out into broader, irregular channels, only again to narrow down. In some cases no further lesion occurs, but in some the cornea becomes ulcerated, and this may occur for the first time ten or twelve years after exposure to the gas. Ulcers extend deeply into the interstitial tissue, separating its layers, destroying much tissue, sometimes producing hypopyon, showing little tendency to heal, and leading finally to extensive and dense nebulae. A striking feature is the mild degree of the symptoms produced; pain, lachrymation, and photophobia being conspicuous by their almost complete absence. That these ulcers are due to the gassing no one who has seen them will doubt, and it seems to me that the clinical course they run is suggestive of a neuropathic cause for them—a suggestion which gains support from the fact that tarsorrhaphy helps markedly in their healing.

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OCULAR MANIFESTATIONS OF LESIONS OF THE FIFTH CRANIAL NERVE *

BY

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The eye receives its sensory innervation by the first or ophthalmic division of the fifth cranial nerve. Afferent impulses pass this route to the Gasserian ganglion, thence by the central root to the pons. Here some of the fibres end in the chief sensory nucleus, but a mass of fibres descends through the pons and medulla to the upper cervical segments of the spinal cord. These form the so-called ascending or spinal root of the fifth nerve, and make connexions with a nucleus—the substantia gelatinosa of Rolando, which extends in a corresponding manner from the pons to the upper cervical cord. From the sensory nuclei a second afferent neuron arises which decussates to form the trigeminal fillet, passing on the lateral aspect of the mesial fillet, and so to the optic thalamus, whence a third afferent neuron passes via the internal capsule and corona radiata to the cortex.

The fifth nerve fibres are thus exposed to injury over a very wide area; they may be damaged in their supranuclear path, at the level of the nuclei, and in their peripheral distribution. A constant result of damage to

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the fibres which carry afferent impulses from the eye is desensitization of the globus oculi, with immediate loss of corneal reflex ; there must also be loss of function in the afferent fibres from the extrinsic muscles of the eyeball. Whether this results in any incoordination of muscular movements I cannot say ; ordinary clinical observation would not suggest that it does. I have never observed any abnormality in ocular movements in cases in which there has been complete loss of sensation in the area supplied by the first division of the fifth nerve. The chief danger which results from desensitization of the globus oculi is corneal ulceration. The questions which I would submit for your consideration are:

1. Is corneal ulceration more likely to occur according to the part of the afferent path which is affected?
2. What may be done to prevent such ulceration from occurring, and if it occurs what methods should be applied to deal with it?
3. What are the ultimate results of ulceration likely to be?

With regard to the first question, I think we must agree that the part of the afferent path which is affected is of great importance in determining whether a consecutive effect on the eye will develop. It is true that in whatever part of their path the ocular fibres are destroyed, desensitization of the eye with loss of corneal reflex will result. In such a case there is an obvious danger from foreign bodies entering the eye unperceived, and thereby setting up inflammation, which is likely to result in corneal ulcer—a state of affairs which might be designated as traumatic ulcer.

I have never seen what for purposes of convenience I will call " spontaneous corneal ulcer " develop from a supranuclear or intramedullary lesion, whatever its nature—whether slow in destructive quality, such as a pontine tumour, or acute, as in a vascular lesion. It is when a lesion affects the first afferent neuron in its extramedullary portion that spontaneous corneal ulcer is likely to occur. Further, I think that acute injury—such as trauma from the surgeon's hands ; acute inflammation, as, for example, in herpes affecting the Gasserian ganglion ; or damage caused by the injection of alcohol—is more likely to produce a corneal ulcer than when the peripheral nervous tissues are subjected to a slower destructive process, as, for example, by pressure from tumours.

I have treated a considerable number of cases of tic douloureux by alcohol injection. For the purposes of this discussion I have looked up my cases in the last ten years ; I have to thank Dr. Fordham, my late house-physician at St. Bartholomew's, for collecting my cases there. I have records of sixty which I have injected with alcohol in that period.

Tic douloureux rarely affects the first division of the fifth nerve primarily, and I am always anxious to avoid desensitizing the eye. Nevertheless, as it is of the utmost importance, if recurrence of the tic is to be avoided, to destroy thoroughly the cells of the Gasserian ganglion supplying the second and third divisions, it frequently happens that the cells of the first division are damaged as well. This is not the place and I do not now intend to discuss the relative merits of operative treatment as compared with alcohol injections of the ganglion in cases of tic douloureux, but modern surgical methods certainly have the advantage of more easily avoiding the fibres of the first division, and in consequence corneal ulcer should occur less frequently after surgical operation than after the use of alcohol.

Of my sixty cases, I find that thirty-six had complete anaesthesia in the first division of the fifth nerves as the result of the alcohol injection ; sixteen of these developed corneal ulcer. As a result of my observation in these cases, I find that the period of greatest danger of corneal ulcer supervening is in the first fortnight following injection. After that period the risk steadily diminishes, and after a month or so the risk is quite small. So far as I have been able to ascertain, only two patients with anaesthesia of the first division out of twenty who escaped ulcer immediately following injection have developed corneal ulcers or any other ocular trouble at a later date. One of these cases was caused by a " splash of lime " getting into the eye when a room was being whitewashed. I do not know what occurred in the second case.

The question naturally arises as to why there should be this tendency to inflammation and corneal ulceration in the early days following injury to the peripheral fifth neurons. The course of events suggests that it may be due to irritation of fibres—perhaps the antidromic fibres described by Bayliss in posterior roots. If such is the explanation the irritation must be due to degenerative changes in the nerve fibres. It might be argued that alcohol produces destruction of some ganglion cells and irritation of others, and that the ulcer develops as the result of irritation of nerve cells by the alcohol. This, however, cannot be an adequate explanation of the cause of ulceration, because removal of the ganglion, including the cells of the first division, is likely to produce the same risk of corneal ulceration. For that reason Horsley was accustomed to stitch the lids over the cornea before removing the ganglion, or twisting the central root out of the pons. If the ulceration of the cornea is due to peripheral nerve irritation it should occur whether the lids are stitched or not. I think, however, it would seem probable that careful protection of the eye does minimize the risk of ulcer developing, and that there is an ocular factor in the shape of an external trauma, which may be very slight, but which will aggravate the tendency to inflammation or ulceration in the early days after operation.

I have never seen any affections of the deeper structures of the eye following injury of the ganglion by alcohol. Herpetic eruptions occur occasionally, but I do not recollect having seen any in the distribution of the ophthalmic division. In herpes ophthalmicus another example is afforded of damage to ganglion cells, whether by haemorrhage or inflammation, resulting in conspicuous cutaneous changes in the peripheral distribution of the first division of the fifth nerve. So far as the eye is concerned, corneal ulceration takes the place of the cutaneous vesicular eruption. I believe that the iris is sometimes involved and an iritis produced, but of this I cannot speak from personal observation ; as Mr. Foster Moore has dealt fully with this aspect of the question I do not propose to say more about it myself.

A point to which I wish to refer briefly is the effect of intensive *x*-ray therapy on a desensitized eye. This question is one of some importance in cases of malignant disease—usually sarcoma of the base of the skull—in which the eye has become insensitive either by the direct action of the tumour on the Gasserian ganglion or from the destruction of the ganglion by alcohol injected for the relief of pain. In any case, the reaction to *x* rays in the desensitized eye is much more acute than in the eye with a normal nerve supply. Dr. Levett, who has charge of our deep *x*-ray therapy department at St. Bartholomew's, tells me that a dose of *x* rays which will under ordinary conditions of innervation produce only slight injection of the conjunctiva, will produce an acute chemosis in a desensitized eye. From my limited experience, it would seem that malignant ulcers progress more rapidly in a desensitized area. I remember a case of rodent ulcer involving the orbit which progressed with devastating rapidity after I had produced an anaesthesia in the area of the first division of the fifth nerve.

What may be done to prevent ulceration from occurring in a desensitized eye? As I have already mentioned,

Horsley used to stitch the lids together before removal of the ganglion. I do not adopt this procedure as a routine because more than half my patients with anaesthesia have escaped without any ulceration. Mr. Foster Moore has frequently rebuked me for not stitching the eyelids—in fact, he does so whenever I have to invoke his aid. Perhaps he is right, but I am anxious to hear the views of others as the result of their experience. I used to irrigate the eye daily, keeping it carefully bandaged for the first fortnight or so, but I no longer do this. A plan that seems to work very well is to keep the upper lid carefully strapped down for two or three weeks, then to allow the lids to open, but to put an eye shield on, which is worn at first both indoors and out, then only outdoors, and finally removed altogether.

The first sign of commencing trouble is injection of the conjunctival vessels, and if this persists I always get the lids stitched at once. If an ulcer has already formed—and they form very quickly—it will be a very superficial affair at this stage, and will heal as a rule without leaving any corneal opacity. I usually leave the lids stitched together for a period of four to six months in those cases in which an ulcer is developing.

Let me repeat that in this series of cases corneal ulceration has occurred within a short interval in 45 per cent. of those individuals in whom a complete anaesthesia in the distribution of the first division of the fifth nerve has been produced. I do not know whether my experience is similar to that of others, and the figures are not large enough by themselves to establish any theory, but the suggestion which arises from a consideration of these figures is that the tendency to ulceration in the cornea desensitized by injury to the ganglion is not due to trauma alone. If there is a nervous factor involved it is difficult to define the manner in which it operates. I do not think that there is any evidence which would support the theory of a trophic nerve influence, but such cases as these we are considering, perforating ulcers in tabes dorsalis, and bed-sores arising with startling rapidity in acute myelitis, prove that interference with the sensory supply of a part renders the tissues peculiarly susceptible to degenerative or destructive processes.

INTRAVENOUS UROGRAPHY IN CHILDREN*

BY

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The radiological investigation of the urinary tract in children has in the past been far from satisfactory. The introduction of retrograde pyelography brought about an enormous improvement in the value of the investigation of the supravesical portion of the urinary tract in adults, and in them it has become a routine method of examination, but in children, for a number of reasons, it is by no means possible to use it as a routine method.

Difficulties in Retrograde Pyelography

While it is true that in the hands of a skilled urologist the technique of the examination does not present any insuperable difficulty, many surgeons who find no trouble in the procedure required in adult patients find a considerable amount in the case of children—it is, in fact, a procedure calling for special skill and training. This, in the first place, is a very definite reason why retrograde pyelography cannot be used as a routine method of investigation in children. When the technical difficulties have been overcome, however, there still remain other objections to this method of examination. Even the slight trauma resulting from the skilled manipulations of the urologist is liable to be followed in children by much more severe general disturbance than is the case with adults, while as a result of catheterization of the ureters children also seem to be much more prone to develop ascending infections of the urinary tract. There is, further, the fact that in children the procedure calls for general anaesthesia. This not only makes the production of satisfactory radiographs free from respiratory movement much more difficult for the radiologist, but from the surgeon's point of view it is also more difficult to know when the kidney pelvis is adequately filled without being over-distended. Lastly, there is the fact that even when this method of investigation is advised permission to proceed with the examination is frequently refused by the parents.

Value of Intravenous Method

The introduction of a method of visualizing the urinary tract without having to resort to instrumentation was therefore a matter of considerable importance to paediatricians. Interest was at once aroused when in 1929 Zwick, working in von Lichtenberg's clinic, used uroselectan for this purpose, and with it was able to show that intravenous urography was not only possible, but was a practical clinical method of investigation. Although for a time opinions were in doubt as to the diagnostic value of intravenous urography as compared with retrograde pyelography in adults, it was at once obvious that, whatever its limitations, it was of considerable value in children, for it would at least give some information which had in many cases been previously unobtainable. This was in the first few weeks after the introduction of uroselectan: further experience has shown that its value is by no means small, and that in intravenous urography we have a method of investigation of the greatest possible value.

That the method of examination has been of practical clinical value is shown by the fact that while in the *x*-ray department at the Children's Hospital, Birmingham, in the two years from 1928 to 1930, only six retrograde pyelographic examinations were made, during the last two years fifty patients have been investigated by the intravenous method. The technique is quite simple to apply in the case of a child, especially since the introduction of uroselectan B, which has been in every way an improvement on the other preparations, uroselectan and abrodil, which had been in use previously. This substance causes no general disturbance, and with no more upset to the child than is occasioned by an intravenous injection, urograms of great practical value can be obtained—in very marked contrast to the procedure necessary to produce pyelograms by the retrograde method. I do not suggest that the intravenous method has replaced the retrograde method, for the limitations of intravenous urography are the same in children as in adults. As in adults, the two methods are complementary and not mutually exclusive, but in a large number of cases the intravenous method will give all the information that is required, and since it can so easily be used without upsetting the patient, it is often employed where one would hesitate to make a pyelogram by the retrograde method.

Technique

The technique of the examination is extremely simple. It consists of the intravenous injection of uroselectan B. The dose used varies with the age of the child. For a child of 5 to 7 years we give a third of the adult dose, with a reduction for younger children, but in no case have we injected less than a quarter of the adult dose—namely, 10 grams of uroselectan. No case has shown any untoward reaction, nor has any patient been in any way upset to a greater extent than is the case with any intravenous injection. The first film is made almost as soon as the injection is finished, certainly within the first ten minutes, and we find it best to inject the uroselectan in the *x*-ray department with the child on

* Read in the Section of Radiology at the Centenary Meeting of the British Medical Association, London, 1932.

the couch ready for the exposure to be made. Further films are made at thirty and fifty minutes after the injection. The chief difficulty with which the radiologist has to contend is the presence of gas collection in the alimentary tract. This gives rise to more trouble in children than it does in adults, especially when they are confined to bed. No method of special preparation has been of much use in my experience—aperients and enemata seem often to make it worse. Nothing does so much good as allowing the child to be up and about when this is possible. The method I find most effective is to give a dose of pulv. glyc. co. forty-eight hours before the injection, and if possible to have the child up and about. When the preliminary film shows large gas collections in spite of this preparation I wait, if possible, a few days and try again, but if the gas collection persists I do not now regard it as a contraindication to proceeding with the injection, as one can often arrive at a diagnosis in spite of the gas collection, and as the injection causes so little inconvenience to the patient, it is always worth while making the attempt. A recent innovation in the examination of young children which I have found to be of considerable value is the use of the Lysholm fixed Bucky grid. The faint lines of this grid do not detract from the diagnostic value of the films, and it enables one to obtain the advantages of a film made with a Potter-Bucky diaphragm without entailing the disadvantages which are associated with the longer exposure required to allow time for the grid to move. The exposures can be made in a fraction of a second, an enormous advantage when one is dealing with infants and small children.

Uses and Indications

The indications for intravenous urography in children are much the same as those for which it is used in adults. It can be employed whenever we wish to visualize the urinary tract, while it will also give certain information with regard to kidney function and the dynamics of the urinary tract. I have found it extremely useful in children for the purpose of localizing doubtful shadows in the region of the kidneys and ureters. Owing to the fact that the pelvic shadow is not so dense as that obtained with retrograde pyelography the outline of a stone may be seen through the shadow of the uroselectan, thus rendering its localization more easy. In the case of doubtful shadows which are approximately in the line of the ureter, while it is true that one seldom sees the ureter filled throughout the whole of its length in any one film, there is almost always one film in the series which shows that portion of the ureter filled which is in the region of the doubtful shadow.

It is, however, in the investigation of cases of chronic pyuria that intravenous urography has been found of particular value in children. Ordinary medical treatment cannot hope to bring about a cure in these cases when there is an associated congenital deformity in the urinary tract. Such deformities would appear to be much more common than was at one time supposed. My colleague Dr. Neale found congenital abnormalities in five out of a hundred consecutive necropsies in children. He takes the view that while there is no useful purpose to be served by making an intravenous urogram in cases of pyuria which clear up quickly, this method of investigation should be used in all cases which do not respond to medical treatment in a reasonable time.

Previously the ordinary radiographic examination of the urinary tract could be supplemented by cystography and retrograde pyelography. Cystography is a simple procedure and presents no difficulty, but unfortunately the abnormalities in these cases of chronic pyuria are almost always in the upper portion of the urinary tract, and while occasionally one can demonstrate hydroureter and hydronephrosis by the cystographic method, it is not possible as a general rule. For the reasons stated retrograde pyelography is not a practical routine method of investigation. The introduction of intravenous urography has, however, revolutionized the investigation of these cases. Its simplicity and safety allow of its being used in all cases. By this method one can demonstrate congenital abnormalities when they exist, and can also show whether the trouble is unilateral or bilateral—a most important matter to decide from the point of view of treatment, since in unilateral cases surgical treatment is indicated. The most common abnormality seen is hydronephrosis, which may or may not be associated with a condition of hydroureter. In no case of chronic pyuria sent for examination has the intravenous method failed to demonstrate an abnormality in the urinary tract, and an analysis of a series of cases which were sent for investigation, although they had responded to treatment and been cured, showed that in every one the report on the urograms was that they were normal. Intravenous urography, therefore, is of the greatest possible value in infants and children for the reason that in them, for the first time, it has provided a practical routine method of visualizing the upper urinary tract.

I should like to express my thanks to my colleague, Dr. Thorpe, and to the sister in charge of the *x*-ray department at the Children's Hospital, Birmingham, for their help in connexion with this investigation.

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A CASE OF SYPHILIS (GUMMATA) OF THE HEART

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Myocardial syphilis is generally recognized as occurring either as a few large scattered gummata or as small diffuse gummata scattered as an infiltration throughout the musculature, especially in the septum and in the region of the bundle of His. The large gummata constitute, as in other organs, the real specific naked-eye lesion, of which Dieulafoy's description can hardly be improved:

"Their yellowish appearance, their elastic consistency, their well-defined limits, their multiplicity, or the coexistence of miliary gummata in the neighbourhood can scarcely allow any mistake. In some cases they are surrounded by healthy muscle tissue, and project towards the endocardium or towards the pericardium. The serous membranes covering them are thickened, and the layers of pericardium may be adherent. In other cases the endocardium is not thickened but ulcerated, the gumma having emptied itself into the ventricular cavity, which has become hollowed out at the expense of the myocardium, with the formation of partial aneurysm."

Projecting cardiac gummata are distinctly rare: when recorded they have been into the ventricular cavity. No case of auricular gummata has been noted in a survey of the literature available in Lucknow. In the case reported below the degree of obstruction to the blood in the superior vena cava was remarkable, producing great dilatation of that vessel, and marked head and neck oedema. The sudden death was apparently due to a thrombosis of the slowed blood flow in the large vein. No gummata were found in the neighbourhood of the bundle of His, although from the characters of the pulse it would not have been surprising to have found them.

Case Record

Lokhe, a Hindu male, aged 40, agricultural labourer, was admitted to hospital on December 15th, 1931, with complaints of discomfort in the abdomen and difficulty in respiration for about two and a half months, and a history of cough with expectoration for one and a half years.

He was suffering from dyspnoea—not usually amounting to orthopnoea—pulmonary congestion, enlarged liver, and oedema. Although the heart was not enlarged there was myocardial weakness, the cardiac impulse being scarcely palpable and the sounds very poor. There was no murmur audible, and the pulse rate was 70 and below, with a regular rhythm. The arterial walls were soft and the pulse tension low. Beyond the congestion there were no pulmonary signs. The liver was moderately enlarged, firm, and tender. Pyorrhoea, lack of appetite, dyspepsia, and constipation were present. There was no ascites, and the spleen was not palpable. Oedema was to some extent general, but there was a much greater degree over the chest, arms, head, and neck than in the lower part of the body; the veins in the neck and the upper part of the chest were distended. The Wassermann reaction of the blood was completely positive. *X*-ray examination of the chest showed no indication of mediastinal growth, though the hilum shadows were prominent, especially on the right side.

It was considered that he had some obstruction to the superior vena cava, probably syphilitic, although the *x*-ray picture did not give much support to a diagnosis of syphilitic mediastinitis. The myocardial affection was thought to be undoubtedly syphilitic. Treatment by potassium iodide was initiated at once.

The oedema, especially of the face, became increasingly more obvious, and the pulse rate gradually slower. A partial heart-block appeared, many beats being dropped. The patient died quite suddenly on December 30th.

Post-mortem Examination

Oedema occurred in the lower limbs and round the ankles, but was present to a far greater degree over the head and neck, chest, and arms. No ascites. There were several ounces of blood-stained serum in both pleural cavities.

Pericardium.—The outer layer was thickened and adherent to the surrounding structures, especially round the termination of the superior vena cava and commencement of the aorta, which were intimately matted together. The visceral pericardium was free. The pericardial sac contained half an ounce of fluid.

Heart.—Size, small. The right auricle was normal externally, but its size was increased. On opening it from the front three globular, light grey gummata were observed, each about the size of a thumb-nail, projecting on a common base from the posterior wall of the auricle and slightly adherent to the anterior wall. They presented the appearance of small birds' eggs in an auricular nest. The gummata much obstructed the orifice of the superior vena cava, and, to a lesser degree, that of the inferior vena cava. Microscopical section showed gummatous structure. The right ventricle showed a fourth gumma immediately below the right auricle at the upper end of the right ventricular border. The left auricle was normal. The left ventricle showed some linear fibrosis in the myocardium. Microscopically there was congestion of coronary veins and slight fibrosis.

Aorta.—There were raised patches and slight scarring of syphilitic aortitis. The coronary arteries were patent, aortic and other valves normal.

Superior Vena Cava.—The wall was markedly thickened and oedematous, and dilated for the last six inches before its opening into the auricle. Endothelium was roughened and covered with greyish ante-mortem clot, the lumen being finally obliterated with red clot, which was the immediate cause of sudden death. The opening of the vein into the right auricle, as seen from the venous side, was almost obliterated by the round gummata which nearly filled the right auricular cavity. Blood could pass to the ventricle only by coursing over and around these gummata.

Inferior Vena Cava.—Similar changes were present, but to a lesser degree.

Liver.—This weighed 35 oz. Microscopically there were small areas of lymphocytic infiltration and venous congestion, but no necrosis or fibrosis.

Left Pleural Cavity and Lung.—The upper and front part of the cavity showed a cherry-sized nodule arising from the rib periosteum and penetrating the tissue of the anterior edge of the upper lobe of the left lung. The edge of this nodule was sharply defined and on microscopical section showed a gummatous structure.

Right Pleural Cavity and Lung.—This showed old firm adhesions along the posterior edge and at the base. An old calcareous nodule was present at the apex and one in the middle lobe—probably tuberculous.

Kidneys.—Weight, 3 and 2¼ oz.—normal.

Spleen.—Weight, 2½ oz.—normal.

No obvious abnormality was discovered elsewhere, and the liver, kidney, and spleen showed no amyloid change.

THE PRINCIPLES AND METHODS OF MALARIA CONTROL IN ASSAM*

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The object of this paper is to state the guiding principles for the control of malaria in Assam, and, as far as possible, the methods of control which we advocate. It is unnecessary here to emphasize the importance of control of a disease which causes a greater amount of sickness, inefficiency, and mortality than any other disease in the world, and the ravages of which have formed one of the greatest obstacles to colonization and civilization. Malaria is undoubtedly Assam's greatest problem, and has cost the local Government and the industries many crores of rupees.

Of the measures directed against adult mosquitos and their bites, nets, mosquito-boots, and screening are common-sense precautions; they are cheap and effective, and might be more widely used. Electric fans, punkahs, and repellents such as kerosene, citronella, and preparations containing pyrethrum are of use, as are sprays, discriminate jungle clearing, and animal prophylaxis. Jungle and other vegetation, provided it be not densely shading a malariogenic channel or swamp, may be cleared on the assumption that it affords shelter to anophelinae during the day time. The importance of animal prophylaxis is noticeable in species such as *A. maculatus*, *A. aconitus*, and *A. philippinensis*, which are known to be transmitters of human malaria when animal blood is not to any extent available. *A. minimus* is a "human blood lover," and the presence of animals, such as cattle and goats, is not, therefore, of much practical value.

Hand catching of adults is worth while in certain areas if it can be properly organized. Systematically performed, it reduces the number of infected adults, and is a valuable method for bungalows, hospitals, and jails. The establishment of adult "catching stations" is also a most useful method of testing the efficacy of anti-larval measures. "Catching stations" are selected shelters, preferably human habitations, where regular catches of anophelinae are made by the same collector for a stated time. This method frequently leads to the detection of dangerous breeding places which might otherwise be overlooked.

It will be seen that measures directed against adult mosquitos have a limited application as far as tea-garden labour forces or villagers are concerned. Measures directed against the larvae of malaria-transmitting mosquitos are, however, of more general application.

It has been proved that *A. minimus* is practically entirely responsible for the transmission of malaria in Assam. We have found that this species in nature breeds under certain defined conditions.

* An address to the Assam Branch of the British Medical Association, April, 1932.

(1) It selects, if possible, clear water, and avoids highly contaminated water: our observations have shown that malaria is most intense in districts where the waters are clearest. We define contaminated water as water containing a high degree of silt, clay, or the products of iron oxide organisms in suspension, and water highly polluted with effluents from factories, cowsheds, or human habitations. Highly contaminated water implies, under field conditions, the presence of that amount of silt, clay, or iron oxide products which prevents the bottom of a white collecting pan from being visible (roughly 2-inch column of water). Further, *A. minimus* will not breed if the surface of the water is covered with a thick scum of algae or a dense growth of aquatic vegetation such as lemna, wolffia, and azolla.

(2) It will breed in stagnant or slowly moving water, but is eliminated by high velocity of current. Thus it can breed in pools, borrow-pits, swamps, seepages, and at the edges of rivers, streams, and drains. In these latter channels it is most frequently found in the pools, pockets, and backwaters.

(3) It selects breeding places exposed or partially exposed to sunshine ; it does not breed in water covered with dense shade. In the selection of breeding places and sites for oviposition it would seem as if vision to a great extent controls the habits of this mosquito, since larvae of this species can readily be hatched out in the laboratory in water highly contaminated with clay or iron oxide products, and they can be hatched out in darkened almirahs in water which has been collected from densely shaded channels.

That silt has a larvicidal action can be shown in the laboratory by passing air bubbles through water containing silt at a sufficient rate to keep it in suspension ; normally all silt is deposited from suspension in stagnant water within thirteen minutes. In a series of experiments in which *A. minimus, A. philippinensis, A. fuliginosus, A. hyrcanus,* and *A. barbirostris* were introduced into jars containing water with a high percentage of silt, 50 per cent. of the larvae died within twenty-four hours, and the remaining 50 per cent. within 110 hours. The dead larvae were subsequently recovered from the silt-laden water by passing it through a fine wire-mesh sieve.

The importance of well-developed tail hooks and palmate hairs in *A. minimus* should also be emphasized, as this species can be found at the edges of a stream with a moderate current if the margins of the stream be grassy enough to afford a suitable hold for the hooks. Other species, with poorly developed tail hooks and palmate hairs, such as *A. umbrosus,* are unable to live under these conditions ; hence they are invariably found in stagnant water and are easily eliminated by drainage.

Anti-larval Measures

These may be divided into (*a*) temporary and (*b*) permanent. The important temporary measures are chiefly the application of larvicides, while the important permanent measures are the application of methods to prevent the breeding of dangerous species, based on a knowledge of their bionomics.

(A) Temporary Measures

These are, unfortunately, the only possible ones in many areas, especially where nature has been unduly interfered with by embankments and bridges, which upset natural drainage, and by irrigation schemes.

Oiling.—Certain petroleum oil products are the larvicides of choice for watercourses, rivers, streams, and drains, also for small collections of water such as pools and borrow-pits. Oiling of unshaded streams and channels should be by spraying, as larvae shelter among the weeds and grass at the edges, and the sprayed oil not only destroys the larvae but also burns up the vegetation. We do not recommend drip cans, because the oil is carried down by the current and may miss destroying the larvae which are sheltering at the edges. Balls and guddas for fairly large pools and borrow-pits are useful.

Paris Green.—Paris green is suitable for swamps and seepages, especially where these areas are cultivated, or where efforts are being made to re-establish dense shade. Oils cannot be applied to these latter areas, as they would destroy the crops or the shade vegetation which has been planted. Paris green does not damage crops in any way, nor in the percentage used is it harmful to man or animals. It requires more care and supervision in its application than oil. For mixing with a diluent, a mechanical mixer is advisable, and a practical point is that the rotation should be arrested at each revolution by a jerk of the handle in order to ensure thorough mixing. For narrow stagnant water channels, hand throwing is sufficient. For swamps and seepages in general a mechanical blower gives excellent results, while for large extensive swamps such as are found in the upper districts of Assam "aeroplane dusting" would appear to be the most suitable method.

(B) Permanent Measures

The factors underlying the important permanent measures based on the bionomics of *A. minimus* and the elimination of its breeding places are: (1) velocity of current, and (2) shade. We would stress the superiority of permanent over temporary measures ; the former eliminate the human factor where temporary measures are liable to fail.

Drainage and Velocity of Current

We have found that slowly running, unshaded, clear-water drains are intensely malariogenic. For drainage to be safe, artificial channels must fulfil the conditions inimical to the breeding of *A. minimus*—that is, the water in the channels must be highly contaminated, densely shaded, or have sufficient velocity of current to eliminate this species. Hedges should not be planted over drains where the velocity of current is insufficient to prevent the channel from becoming blocked by the deposition of silt.

The most efficient method of drainage in Assam is by concrete inverts, and these should be so graded that there is sufficient velocity of current to carry away debris. The grade should be at least 1 in 200 to ensure sufficient flow, as water tidiness (absence of grass, weeds, etc.) does not prevent *A. minimus* from breeding in a channel lined with concrete ; it has been found breeding in newly constructed cement-lined wells.

When constructing concrete drains it is essential to see that sufficient weep-holes be made in the sides of the drains for the entrance of subsoil water. Subdrainage in Assam is rarely a practicable measure owing to the high subsoil level of the water table, and therefore can be applied only in a few selected areas. The water reaches these drains by percolation, thereby converting these channels into underground streams. Rubble drains can be applied in much the same areas as subsoil pipes, if material be available, but the cost of both these methods is a great drawback. We would stress that drains in coolie lines normally have no effect on the malaria incidence, as they are usually too highly contaminated to breed the carrier species.

Swamps.—Generally speaking, swamps in Assam are undrainable in the monsoon season owing to the heavy rainfall. For this reason the only practical policy for dealing with malariogenic swamps is to allow them to return to nature ; and nature can be assisted by replanting the swamps with appropriate vegetation. Unfortunately in Upper Assam many swamps are cultivated, and are dangerous during the transmission season owing to *A. minimus* breeding in contour and herring-bone drains or other channels. As many of these exposed channels in cultivated swamps cannot be oiled without destroying the crops, the only method to be advocated at present is the application of paris green, or to abandon the areas and allow them to revert to nature.

Rice Land.—The same applies to high-lying terraced irrigated land where the clear-water irrigating channels are also intensely malariogenic. Methods of dealing with such high-lying cultivated land are the periodic drying by controlled irrigation, or the cultivation of crops which are physiologically suited to this type of land, and therefore do not require irrigation.

Dangers of Drainage.—It is essential to stress the dangers of drainage generally in Assam, as clear-water slowly running drains form excellent breeding places for *A. minimus*. Clear-water malariogenic borrow-pits should not be connected up with the object of draining them, as thereby they are made more dangerous. Our method of dealing with borrow-pits is to break the impervious pan forming the base of the borrow-pits, to assist percolation, then to fill it with cut jungle or line refuse if sufficient soil be not available in the vicinity.

Shade

The terms "shade" and "jungle" are not synonymous. Jungle may refer to dense virgin forest, low bush or scrub, or even long grass, and may be patchy or dense. The only questions which concern the malariologist are whether it produces dense shade and covers watercourses or not.

We use the word shade in this paper as it is the real factor underlying our malaria problem. Shade may be absolute, dense, or partial. Absolute shade implies darkness due to the complete interception of rays of light—this is obtained by subsoil drainage. Dense shade implies the elimination of that degree or gradation of light under which vegetation containing chlorophyll can survive, and is inimical to the habits of *A. minimus*. Partial shade allows the growth of chlorophyll-containing vegetation, and is as dangerous as complete exposure to sunshine.

One practical test in the field of dense shade is the absence of grass beneath the shade. Vegetation used as shade should be biologically adapted to the terrain—for example, plants physiologically suited to aerated soil will not grow in swamps, and vice versa. The plants selected should be unsuitable as food for animals and should be strong enough to withstand being uprooted by storms. After planting hedges and swamps it is necessary to control with paris green until dense shade is established, as during the intermediate stages breeding places are not eliminated as long as sunshine can reach the water.

In Assam *A. umbrosus* and *A. aitkeni* are found in degrees of shade which are inimical to *A. minimus*, but to date we have never found even these species in really dense shade. It would appear that the habits of the two former species are greatly regulated by the effects of temperature, since during the colder periods of the year they have been found breeding in unshaded areas. This is especially noticeable in the case of *A. aitkeni* at high altitudes, as in Shillong.

Other Measures

Treatment of infected cases and of gametocyte carriers is a common-sense measure. Site selection is of primary importance. Watson[1] in Malaya and Christophers in the Andaman Islands showed that malaria was absent, or nearly so, in villages or estate coolie-lines which were over half a mile from the breeding places of dangerous mosquitos. In the past lines have been constructed in close proximity to malariogenic streams or swamps, often without any thought of possible unhealthiness. The policy in the future is obviously to avoid such mistakes which have been unwittingly made in the past, and to select more healthy sites for human habitations. Removal of existing lines to better sites is sometimes the most economical method of dealing with particular malaria problems, especially where embankments and bridges have created unnatural conditions and have made control by temporary or permanent measures extremely difficult or expensive.

Tanks.—In some areas abandoned clear-water tanks are the cause of much malaria, and in many cases it is now impossible to fill these. To obviate recurring expenditure on larvicides, we are experimenting with iron oxide organisms and other substances, with the object of introducing sufficient contamination to eliminate *A. minimus*. For tanks which are being used as a drinking-water supply, bamboo turzas at the margins are being tested with the object of producing dense shade.

Kutcha Wells.—Needless ones should be filled in, or in any case oiled until filled. Those required as drinking-water supplies should be covered.

Natural Enemies.—We consider that fish, water beetles, pond skaters, water-boatmen, may-fly and dragon-fly larvae, and other natural enemies are rarely of much practical value. Anopheline larvae are often found quite plentifully in grass and weeds in water teeming with so-called natural enemies, which would indicate that what can be shown in the laboratory does not always take place to any extent in nature.

Embankments.—The flooding of ravines by building embankments or bunds across the outlet with the object of burying seepages is especially dangerous in areas where the water is clear, and we do not recommend it.

Sluice Gates.—The method of attempting to produce velocity of current by sluice gates is likely to form pockets, and water is apt to flood over the banks and form pools, thereby creating fresh breeding places. This method is also fraught with danger and is rarely applicable.

It will be seen that to appreciate the fundamental factors underlying malaria control account must be taken of rainfall distribution, and the effect of transpiration, evaporation, percolation, and run-off, of soil composition, and the physical features of a district, also of the direction and strength of prevailing winds, temperature and humidity, distance of breeding places, etc. Former popular beliefs that dirty water and dense virgin jungle, hitherto called dank, rank, etc., were the sources of malaria in Assam have been shown to be erroneous, as also the idea that the pioneer who clears or drains is necessarily benefiting mankind. No longer will the phrase "clearing the dense virgin jungle" have about it a resounding note of pioneering heroism, as we now know that the anopheline mosquito, which transmits our malaria, does not breed under dense shade, or in water which appears to be noisome or revolting, but in clear water exposed or partially exposed to sunshine. In future the control of malaria in Assam will mean less interference with nature and a realization of the fact that the green beauty of vegetation covering rivers, streams, and swamps can be allowed to remain with improved health to mankind.

Reference

[1] Watson, Sir Malcolm: *Prevention of Malaria in the Federated Malay States.*

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

ACUTE LOCALIZED PHLEGMONOUS ENTERITIS COMPLICATING PREGNANCY

The following case recently came under my care at the Bedford County Hospital.

The patient, a domestic servant aged 20, was admitted to hospital at 10.30 p.m. on June 1st, 1932, with the history that, except for a mild attack of abdominal pain three years ago, diagnosed as appendicitis, she had enjoyed good health. There had been amenorrhoea since January, 1932. At 6 a.m. on June 1st while in bed she was seized with violent abdominal pain; two hours later she vomited, and the pain and vomiting continued all day. In the evening pain also developed at the top of the right shoulder. On examination she was flushed and a little cyanosed, the tongue furred, temperature 102.4° F., pulse 130, respiration 34. The abdomen was tender and resistant all over, but not distended; these signs were most marked in the right iliac region. The whole lower abdomen was dull on percussion, and there was shifting dullness in the loins. The uterus was enlarged to the size of a five months' pregnancy.

Operation

The abdomen was opened through a right pararectal incision, and a quantity of turbid inoffensive fluid escaped. A large mass occupying the right side proved to be an acutely

inflamed segment of small intestine. The mesentery was much thickened, and the bowel above slightly distended. About 20 inches of bowel were resected, and a lateral anastomosis performed. A drain was placed down to the junction, and the wound sutured. Progress was satisfactory until distension became pronounced on the fourth day; this fortunately responded readily to treatment, and by the sixth day the patient was comfortable and taking nourishment well. Two days later there was a faecal discharge from the wound, but this ceased on the tenth day. Pus continued to drain until the fourteenth day, when the wound had healed except for a superficial sinus. At the end of three weeks the patient was allowed up, the wound having healed completely. There were no signs that the pregnancy had been affected by the abdominal condition.

Pathological Report

The specimen consists of about 20 inches of ileum with adjacent mesentery. In part of its length the bowel has been slit along the free border and partly everted. For about 6 inches the mucous membrane is greatly swollen by oedema and the valvulae conniventes are pale and thickened to half an inch in width in some instances, obstructing the lumen of the bowel. In the lower part of the affected area there is marked haemorrhagic extravasation into the swollen mucous membrane, especially along the mesenteric border, where the membrane is raised into rounded projections. Above the affected area the mucous membrane is normal, but the bowel is slightly dilated; below it the wall of the bowel is oedematous for several inches. There is no definite ulceration. The mesentery corresponding to the inflamed length of bowel is enormously distended with inflammatory exudate and haemorrhage. It forms a firm mass 2 inches in thickness and 5 inches in length, curved in correspondence with the curve of the bowel, which is stretched over its convex border. At a distance of 2 inches from the border of the intestine the swelling abruptly ceases, the proximal part of the mesentery exhibiting merely slight oedema. Where part of the mesentery has been removed the section shows extensive haemorrhage and a spongy nature of the rest of the tissue, due to distension of the lymphatics and oedema. The peritoneal surface of the ileum and mesentery is discoloured by haemorrhage and exhibits fibrinous exudate in places. Microscopical examination of the wall of the bowel shows enormous distension of the lymphatics of the mucous and submucous layers, together with abundant haemorrhagic extravasation in places. In almost all parts of the section the tissue intervening between the dilated lymphatics is densely infiltrated with polymorphonuclear leucocytes. I am indebted to Mr. T. W. P. Lawrence for the pathological description.

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HENOCH'S PURPURA SIMULATING ACUTE APPENDICITIS

In the case described below the difficulty arose from the fact that the child was very ill, with a dirty tongue, marked rigidity in the right iliac fossa, and constipation; and, in the absence of purpuric eruption and of haemorrhages from any other source, it seemed that the abdomen must be opened to investigate the condition of the appendix. The platelet count did not help. The other clinical features of the disease as described by Henoch—that is, pains in the limbs and swelling of the joints—were absent.

On July 4th, 1932, a boy aged 7 years was admitted to the children's ward. The history obtained was as follows. Two to three weeks previously the child had tonsillitis and otitis media, which cleared up. He was quite well until six days before admission, when he complained of abdominal pain—increasing in severity—loss of appetite, and vomiting after meals during the first two days of abdominal pain. The pain was apparently not localized. The child was constipated. No blood or mucus had been noticed in the stools.

The patient was obviously very ill: pale and wasted, temperature 98.4°, pulse 108, respiration 30, tongue coated. There was marked tenderness and rigidity in the right iliac fossa. No mass was felt by abdominal examination or per rectum. His skin presented no signs of purpura or other spots.

In view of the minor epidemic of paratyphoid prevailing at the time, this diagnosis was borne in mind, but the abdominal signs justified a diagnosis of acute appendicitis, and the abdomen was accordingly opened. At operation, clear free fluid was present in the peritoneal cavity; the appendix, though removed, did not appear to be pathological. The lower six inches of the ileum, however, was oedematous and haemorrhagic in appearance. Culture from the contents of the lumen of the appendix showed absence of the typhoid group.

On the second and fourth days after admission the Widal reaction was negative. Faeces were negative for typhoid group—no blood present. Urine showed a trace of albumin—no casts seen. Blood count: haemoglobin, 95 per cent.; red blood corpuscles, 4,800,000 per c.mm.; colour index, 0.9; white blood corpuscles, 5,800 per c.mm.; polymorphs, 65 per cent.; lymphocytes, 27 per cent.; monocytes, 5 per cent.; eosinophils, 3 per cent.; platelet count, 400,000 per c.mm. (approx.).

On the sixth day after admission the patient had an attack of haematuria. On the seventh day—that is, thirteen days from the onset of the illness, a purpuric eruption appeared on the arms and legs, principally around knees and elbows. There was no eruption on the trunk. On the fourteenth day (after admission) there was a recurrence of haematuria with an attack of abdominal pain. A diagnosis of Henoch's purpura was made, and this diagnosis would have accounted for all the symptoms from the onset. The child subsequently made an uninterrupted recovery.

I wish to express my thanks to Dr. Donald Paterson for permission to publish this case.

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CONGENITAL HYPERTROPHY OF THE BLADDER WITH POLYCYSTIC KIDNEYS

The following case is, I think, of sufficient interest to be worthy of record.

Mrs. W. was delivered of a male infant at the Municipal Maternity Hospital, Swansea, on June 23rd, 1932. The baby was very limp at birth. He gave one feeble cry, and after one or two breaths respiration ceased. In spite of all the usual methods of artificial respiration and stimulation, he failed to respond. On examination the abdomen was markedly distended, the enlarged bladder being easily palpable. A presumptive diagnosis of congenital hypertrophy of the bladder was therefore made. On post-mortem examination the ureters were found to be greatly dilated and tortuous and looked like coils of small intestine. No obstruction of the ureters was found. The bladder was also enlarged and its wall hypertrophied. The surfaces of the kidneys were irregular from protruding cysts. On section, the kidneys were the site of numerous cysts of varying size, which contained clear fluid. The right kidney was very large and cystic, and no kidney tissue was visible on naked-eye examination. The left kidney was smaller, the major part being cystic and the rest consisting of apparently normal kidney parenchyma. The pelves of the kidneys were a little dilated, but only a very slight degree of hydronephrosis was present. No other abnormality was found; the liver and spleen were not cystic.

Commentary

The case is interesting in that it is unusual to find congenital hypertrophy of the bladder associated with polycystic kidneys, and only a very slight degree of congenital hydronephrosis. Congenital hypertrophy of the

bladder occurs only in male infants. The theories advanced for its causation are as follows:

1. John Thomson attributes it to "the existence *in utero* of a state of incoordination between the sphincter and detrusor muscular apparatus of the bladder." The condition therefore is analogous to congenital pyloric stenosis.

2. Proust, Young, Froutz, and Baldwin attribute the condition to congenital valvular obstruction in the posterior urethra and state that the urethra and internal sphincter above these folds of mucous membrane are dilated. These folds, however, are probably not the primary cause, but result from the hypertrophy, and aggravate the condition. Thus the condition can again be compared to congenital pyloric stenosis, in which folds in the mucous membrane result from compression by the surrounding muscular tissue.

The condition can therefore be explained by the above two hypotheses working in conjunction with one another. It is interesting to note that the mother gave a history of having lost, in 1930, her only other child—a boy aged 6 weeks—from congenital pyloric stenosis. Defective co-ordination *in utero* was probably an important factor in both cases.

The question of the pathogenesis of polycystic kidneys is still under dispute. Virchow's theory holds that the disease is due to chronic interstitial inflammation—probably arising *in utero*—the cysts being retentive in type, and resulting from obstruction of the tubules of the kidneys. The multilocular cystadenoma theory advances the view that the cysts are degenerative in origin, while the congenital theory ascribes the condition to an imperfect fusion between the excretory and secretory germ elements.

The congenital theory seems the most acceptable as it points to defective development. The evidence in its favour is especially strong in this case, where it is associated with another congenital abnormality in the bladder hypertrophy.

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DIAPHRAGMATIC HERNIA IN THE NEWBORN

I recently attended a woman in her confinement, and, apart from acute hydramnios coming on in the last fortnight of pregnancy, associated with the sudden appearance of albuminuria, nothing untoward had occurred to mar an uneventful gestation. This was her third pregnancy, her first-born being a red-headed, apparently healthy boy, who, however, died on the second day of scarlet fever, when less than 2 years old; her second is alive and well, aged 3 years. This woman, aged 31, a year previously had had stiffness in the arms and legs lasting about ten days, transient right homonymous hemianopia lasting a few hours on two occasions, diplopia lasting two hours on one occasion, paraesthesia in the hands and feet, and difficulty in speaking, all being associated with slight pyrexia. Another ocular symptom was "a very distinct (after) image" of me standing by the bedside after I had left it, lasting a few seconds. Examination of the central nervous system at that time revealed rigidity of the fingers, and on one occasion a doubtful lessening of sensation to wool on the left side of the face. All the tendon reflexes were normal and equal, and the plantar responses were always flexor; the pupils reacted to light and accommodation, and the optic discs were normal. Her blood Wassermann was negative, and her cerebrospinal fluid was found to be chemically and bacteriologically normal and gave a negative Wassermann reaction. Although these symptoms were suggestive of disseminated sclerosis, on eminent authority she has been regarded as an hysteric.

On May 7th of this year she gave birth to an apparently normal healthy full-term boy. Labour, although prolonged, was natural, no manipulation or instrumentation being necessary. The child breathed naturally from the first, and required no resuscitation; this continued for twenty-four hours, after which difficulty in breathing gradually developed. The lungs appeared to be collapsed; the apex beat, which had been in the normal place formerly, was felt on the right side of the chest; no air entry could be heard into the left lung, and very little into the right. Intratracheal intubation was tried without effect, and the child died thirty-six hours after birth. Post-mortem examination revealed an abnormality in the diaphragm on the left side, there being a triangular-shaped opening postero-lateral to the oesophageal hiatus, and in area about the size of a shilling, through which nearly all the small intestine and part of the caecum, which was abnormally mobile, had herniated into the thorax, nearly filling it. Both lungs were collapsed, but it was possible to show that each had contained air. The heart and mediastinum were displaced by the mass of intestines to the right and upwards. There was no peritoneal hernial sac.

There is no doubt that when the child was born very little if any of the bowel had herniated through the opening, as was shown by the normal filling of the lungs, but it is probable that with the first inspiratory effort a coil of small bowel was drawn through into the thorax, and, although breathing was not at first impeded, each successive inspiration caused a continuation of the process, eventually created dyspnoea with consequent forced inspiration going on to the eventual complete filling of the potential space of the thorax with abdominal viscera, to the exclusion of all air entry to the lungs.

The sequence of events in this case was so striking, and was so adequately explained by the post-mortem findings, that I thought these notes might serve some useful purpose if published. Diaphragmatic hernia is uncommon, and is, as a rule, diagnosed only with difficulty; it usually takes a chronic course, the symptoms being more abdominal than respiratory, but here quite the reverse was the case, the course being very acute, causing death in a few hours, and the symptoms being entirely respiratory.

Redhill, Surrey. L. J. Barford, D.M.

RUPTURED ECTOPIC GESTATION

The following case seems worthy of record in view of the obscurity of the symptoms, and because it serves to illustrate the inadvisability of temporizing with supposed cases of appendicitis, in the female at all events, even though the symptoms are suggestive of a subacute or subsiding abdominal condition.

A married woman, aged 25, 4-para, was admitted on August 24th, 1932, with a diagnosis of appendicitis. All children were alive and healthy, ages ranging from 6 years to 19 months; normal labours. There was no history of leucorrhoea or other signs of pelvic disease. Menstruation normal, the last period having occurred at the usual time a few days prior to admission, and was quite normal. On the afternoon of August 22nd she had felt slight pain across the lower abdomen; this pain soon became localized to the right iliac region. Soon after the onset of the pain she vomited a little greenish fluid. There was no vaginal bleeding. She continued her household work. Next day there was diarrhoea and frequency of micturition. The pain became severe that night, and on the 24th she was sent to hospital.

On admission she was rather flushed. Temperature 99.2°, pulse 102, respirations 24. There was slight tenderness in the right iliac region on deep palpation. The abdomen was opened by Battle's incision. There was a considerable amount of fresh blood-clot, and a little free bleeding in the right side of the pelvic cavity. A ruptured early ampullar pregnancy was found, and the affected right tube was adherent to the adjacent gut. The clot was removed and the affected tube ligatured and excised. The appendix was slightly injected,

but it was decided to leave it, in view of possible risk of infection of fragments of clot. The abdomen was closed without drainage, and the patient is rapidly recovering.

I am indebted to Mr. Stronach for permission to report this case.

REGINALD C. WEBSTER, M.B.
Mansfield and District Hospital.

Reports of Societies

FRACTURES OF THE LOWER JAW

At the meeting of the Medical Society of London on October 24th, with Sir JOHN BROADBENT, president, in the chair, the subject for discussion was "Fractures of the lower jaw."

Mr. WARWICK JAMES, in some opening remarks, based mainly on experience gained in the treatment of war injuries, said that fractures of the lower jaw fell into two distinct groups: fracture of the body, involving the tooth sockets, and fracture of the bone beyond the tooth-bearing area. Fractures belonging to the former group were generally compound; those of the second group were rarely compound, and more closely resembled fractures of other bones. A fracture followed the application of a force greater than the bone was able to resist, but special cases occurred in which, owing to disease or other cause, quite a small force resulted in fracture. The majority of fractures of the mandible occurred in young adults; this applied not only in war cases, but in most motor-car and motor-cycle injuries; in children this fracture was not common. The displacement which caused much difficulty was elevation of the posterior fragment if the fracture was in the molar region, and especially if there was comminution of the bone. The fractures varied from those of simple type with little displacement to those of great comminution and loss of tissue, both hard and soft. Certain complications might be present. Dislocation of the condyle might occur and be easily overlooked, and fracture of the skull, the maxilla, and other injuries might add considerably to the difficulty of treatment. The commonest sites of fracture were in the canine and molar regions and through the neck of the condyle. In multiple fractures it was unusual for the neck of the condyle to escape, and fracture of the neck was associated with displacement of the mandible towards the site of the fracture. Mr. James showed photographs illustrating the typical appearance of the patient with severe fracture—the rigidly held head and the open mouth with the saliva running out. The danger of infection of the respiratory tract was a serious menace if coughing could not take place. In such cases treatment must be directed to cleaning up the mouth and fixing the fragments in such a manner that the tongue had free movement without causing pain. The most important principle to emphasize was continuity of living tissue through the mandible. The teeth must not be considered as separate entities. The fact that the fracture which involved the tooth sockets was invariably compound made it important to consider the possibility of necrosis, and every precaution must be taken to avoid infection. If the fractured parts were brought into perfect apposition it was remarkable how little necrosis supervened. Removal of a tooth was justified only if it interfered with the restoration of the fragments, or, being fractured, was a cause of acute pain which could not be relieved. The socket from which a tooth had been removed was a frequent site of necrosis. The mouth differed in its healing capacity from most parts of the body, and a compound fracture of the jaw was certainly less serious than a corresponding fracture of other bones. Wherein lay the greater degree of immunity he could not say, possibly in the saliva itself. In order to procure the best results every possible fragment of bone or tooth should be retained unless actually detached. If bone had been lost the remaining fragments should be placed as far as possible in their correct positions, and the soft tissue extended so that folding or puckering was prevented. The treatment of all fractures of the mandible consisted of two stages—namely, the restoration of the fragments to the normal position, and their maintenance in that position. The making of a splint was not always easy; the taking of the impression might cause pain, and the introduction of the splint might cause disturbance to the occlusion, so that to avoid an imperfect result great care was necessary. Dislocation of the condyle was not easy to correct, and it was always wise to await a radiograph. Mr. James exhibited a number of splints and fixing wires of the kind he commonly used.

Sir HAROLD GILLIES said that the chief complications met with in fractured mandible were non-union, malunion, delayed union, much loss of bone substance, obliteration of the buccal sulcus, and facial deformities. Frankly, the first essential for the surgeon when he got a case of fractured mandible was to call in a dental surgeon, and he hardly dared speak about splints, but he would draw swords with Mr. Warwick James with regard to the wires which Mr. James preferred to cap splints. A considerable proportion of his own war cases were treated with cap splints, which kept the whole jaw firm, and could be fitted without an anaesthetic. On the whole he favoured cap splints as a method of fixation. When one tooth was in a separated fragment a cap splint would hold it in excellent position. With regard to malunion, he thought one ought to be bold enough to undo a malunion and reunite the fragments in good position, either with or without the interpolation of a bone graft. If the patient had a functional result, and especially if there were no teeth in the lower jaw, the matter of appearance only came into play. Patients came with an ugly-looking jaw, which could to a certain extent be modified by the interpolation of grafts. Many of the cases of deformity resulting from malunion in fractured jaws could be improved by a buccal inlay, especially when a piece of bone had been missing in the middle of the jaw. Delayed union and non-union were the same in the mandible as in any other bone. The leaving of teeth in the line of fracture was to be utterly condemned. To leave in a tooth in the line of fracture showing any signs of absorption around the roots was to invite further necrosis and to delay any union, or even to make for non-union. He agreed that if a jaw was much comminuted, and pieces of bone could only be utilized by a tooth which was in the line of fracture, the tooth might be left in, but only for as long as was necessary to keep that bone in position, and that was not very long. All pieces of loose bone and fragments between the ends of the bones should be removed, as well as the teeth. Cases of much loss of bone substance, say where the loss was more than half an inch, could probably be treated *ab initio* with the idea that a bone graft was necessary, and bone grafting had now been done by so many people and so successfully that it was an absolutely established procedure. He showed a short cinematograph film illustrating the insertion of a buccal inlay; not, however, in a case of fracture, but in a case of great loss of tissue owing to lupus. The film illustrated his technique for skin grafting into the buccal sulcus. In every case of bone grafting of the mandible, the buccal ridge was not sufficient for the dentist to fit a proper plate, without which the object of the bone graft was incomplete. The operation shown was merely to incise the buccal mucous membrane along the junction between cheek and jaw, deepen it to the requisite size, fill it up with some sterilized mould, cover the mould with skin graft, and hold it in position with a specially applied splint. At the end of a fortnight one could be absolutely certain that the whole cavity would be epithelialized and capable of bearing a denture indefinitely.

Mr. PERCY COLE declared his hearty agreement with Sir Harold Gillies in his preference for the cap splint to the wire for teeth. In his own cases the cap splint had been universally employed, and he found nothing against it. With regard to the extraction of teeth, perhaps Sir Harold had taken up a position of compromise to which most of them now tended. During

the period of the war there was controversy on this point between different schools, the protagonist of indiscriminate extraction being Mr. (now Sir Frank) Colyer, and one of its most strenuous opponents being himself. He had now arrived at the conclusion that, while indiscriminate extraction of teeth was not to be defended, at the same time a determined conservatism when a tooth was obviously useless was not to be persisted in either. Nothing had been said that evening in connexion with bone grafting about the method more or less associated with his name—namely, that of pedicle grafting of the mandible, the graft being taken from the mandible itself. He showed lantern slides illustrating the method and results of pedicle grafting, and, in speaking of a case of fracture due to extensive osteomyelitis, said that he thought it was the duty of the dental surgeon to anticipate a possible fracture in such a condition by the application of a suitable splint.

Mr. Zachary Cope, after speaking of the value of collaboration between dentist and surgeon, not always carried out in general hospitals, took exception to a remark by Mr. James that the diagnosis of fractured jaw was always easy. It was always easy if attention was drawn to it, but he had seen many cases of fracture which had been overlooked, not by the surgeon, but by the patient, who, having received a blow on the jaw, especially after boxing, took no notice of it, and presently came up for a swelling of the jaw, which he had not attributed to any injury to the bone. So many techniques of bone grafting had proved successful that it was unwise to dogmatize about methods. In his work with Mr. Warwick James they had used catgut sutures, and personally he preferred catgut to the foreign wire. It was rather puzzling that some who had spoken had been against the putting in of wire in the initial fracture, but had implied that it caused no trouble when put in with the graft.

Mr. E. D. D. Davis related his experiences in the war, saying that it was borne home to him that the most important thing in immediate treatment of fracture of the jaw was to reduce the displacement deformity, clean up the patient, and try to fix the fragments in good position. Absolutely rigid fixation was not necessary ; union took place even if there was very slight movement between the fragments, but fixation must be sufficient to prevent deformity. He agreed that the cap splint was most valuable.

Mr. A. H. McIndoe said that sepsis in delayed union was *per se* not a deciding factor in the case of delay, but sepsis plus foreign bodies was extremely important, and he agreed with Sir Harold Gillies that teeth or roots of teeth in the fracture line were a potential source of chronic infection.

Mr. Warwick James, in the course of his reply, said that the chief point about bone grafts was to wait long enough to be sure there was no sepsis. In a few cases in his war-time experience bone grafts had been attempted too quickly, and apparently there was sepsis. Sir Harold Gillies, also in reply, remarked that it was impossible to control a posterior edentulous fragment by any known means other than a surgical procedure from the outside. Every ingenious dental surgeon had tried saddles and various gadgets to control the posterior fragment, but he did not believe that it required control at all.

INDICATIONS FOR AND AGAINST CAESAREAN SECTION

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine held on October 21st, with Mr. J. P. Hedley in the chair, a discussion on the indications for and against Caesarean section was opened by Dame Louise McIlroy.

Caesarean section, she said, was much favoured by young surgeons and obstetricians. Pelvic contraction was the chief indication for its performance, and those cases in which the degree of contraction was slight needed careful judgement. A trial labour gave valuable information, and had reduced the incidence of Caesarean section, for many patients were found to deliver themselves normally. In private practice, however, trial labour could not be employed. Where the outlet of the pelvis was contracted and the brim normal, trial labour had usually progressed too far for Caesarean section to be performed before it became clear that normal delivery was impossible. In asymmetrical pelvis the head often entered the cavity in the wide diameter, and normal delivery took place ; should the head take the wrong turning Caesarean section could then be performed. In cases of breech with extended legs, where attempts at version had failed, she performed section, especially if the patient was an elderly primigravida. Persistent transverse presentations constituted another indication for the operation, but posterior presentations usually rotated spontaneously and required no interference. The operation was valuable in antepartum haemorrhage and central placenta praevia, but shock due to severe loss of blood in the mother, and prematurity in the foetus, were contraindications. Caesarean section was generally unnecessary in cases of maternal heart disease ; successful results were obtained with rest during pregnancy, and sedatives and anaesthesia during labour. Fibroids could be removed at the time of Caesarean section, but Dame Louise McIlroy preferred to remove ovarian cysts during pregnancy, because of the danger of torsion of the pedicle. She asked whether section was justifiable where a woman had previously undergone an extensive repair operation for a prolapsed uterus. She preferred to perform Caesarean section after labour had begun, because it was then possible to be reasonably sure that the child was not premature ; moreover, if trial labour was employed the woman might deliver herself spontaneously, and in any case the uterus would contract down and drain better if labour had started. She had recently used stovaine anaesthesia for the operation, with success.

Mr. Carnac Rivett preferred to choose the time of operation himself, though he tried to perform it during the last week of pregnancy ; the patient could then be properly prepared for operation. He did not employ trial labour ; statistics showed that the longer the patient was in labour the greater were the risks of Caesarean section. In cases of heart disease the strain of operation was greater than that of normal delivery. He thought it wiser to wait until term before operating on ovarian cyst, owing to the danger of premature labour if operation was performed during pregnancy.

Mr. Everard Williams thought the indications for Caesarean section very few. Disproportion at the brim was best treated, he thought, by induction of labour. If a trial labour had been employed he performed section not later than two hours after rupture of the membranes, and carried it out extraperitoneally through the lower uterine segment. The uterus drained better if the patient was in labour at the time of operation. Caesarean section had a place in the treatment of eclampsia if eliminative and sedative treatment had been tried and was seen to be failing. Myomectomy should never be performed at the same time as Caesarean section ; the uterus at term was in its most vascular state, and the chief danger of myomectomy was from bleeding. Non-absorbable ligatures ought to be abandoned for suture of the uterus, and only catgut used.

Dr. W. S. Richardson said that trial labour ought only to be employed when it was expected to succeed. A radiograph sometimes helped to decide whether there was disproportion or not. Eclampsia ought to be treated by operation, in his opinion ; in other surgical conditions it was customary to remove the cause if possible, and the same rule ought to be followed in eclampsia. Rupture of the uterine scar might occur in pregnancy following Caesarean section if the wound had been badly sutured, or if a weak scar had been produced by sepsis.

Mrs. F. Ivens Knowles said that trial labour increased the incidence of pyrexia in cases treated by Caesarean section. She only operated for fibroids during pregnancy if there was necrobiosis. Patients suffering from heart disease should be treated with rest and forceps delivery at term.

In replying, Dame Louise McIlroy said that in cases where she employed trial labour the patient was prepared for operation beforehand. Radiography seldom gave much help in determining the degree of disproportion, though it was useful to confirm the diagnosis of the lie of the foetus.

VACCINIA VIRUS AND IMMUNITY

The presidential address to the Pathological Society of Manchester was delivered on October 12th by Professor H. B. Maitland.

Discussing vaccination and small-pox, Professor Maitland said that one characteristic of the viruses of variola and the pock diseases was their modification by passage through various animal species. In addition to their undergoing changes in pathogenicity and tissue affinities, it had been shown recently that they might be altered to some extent antigenically. There was still, however, some essential antigenic correspondence between variola and vaccinia, since vaccination protected against small-pox. The virus of vaccinia was represented by the Paschen bodies or elementary bodies. The nature of immunity to vaccinia was on broad lines comparable to anti-bacterial immunity. Antibodies had been demonstrated by the reactions of agglutination, precipitation, and complement fixation. There was considerable evidence that phagocytosis might be an important factor in immunity. Antibodies could also be demonstrated by the *in vitro* neutralization test. It appeared probable that the virus was sensitized by contact with immune serum. It was not rapidly destroyed, and virus could be recovered for a time from such a mixture. The suggestion was made that it might be possible to substitute culture virus for calf lymph in performing human vaccination. The lesions produced by culture virus were like those caused by calf lymph. One advantage of using culture virus would be its freedom from bacteria. The production and study of culture virus had now reached a stage in laboratory investigations when serious consideration should be given to the possibilities of utilizing it on a large scale for human prophylaxis. The establishment of immunity to vaccinia without lesions had been possible in animals. Killed virus was a weak immunizing agent, but the efficiency of killed virus might depend on the method used for killing it. It was possible that further exploration might reveal that the optimal conditions for preparing a killed prophylactic had not been attained. Mixtures of virus and immune serum could induce a considerable degree of resistance in rabbits and monkeys, and might in man be capable of providing a serviceable immunity. The virus was not dead, but the admixture with serum prevented the occurrence of lesions. There was some evidence to suggest that resistance to vaccination after recovery from infection might depend upon the persistence of living virus in the tissues, but this point had not been fully worked out. There was no doubt that living virus was much more effective than dead virus in establishing immunity.

At the October meeting of the Paddington Medical Society Mr. A. S. Blundell Bankart gave an address on manipulative surgery in general practice. Various conditions were enumerated which had provided the modern bone-setter with the material for his popular and financial success. Among these were flat-foot, sprains of the knee, sacro-iliac, lumbo-sacral, and acute or chronic lumbar back strain. Mr. Bankart stressed the fact that the treatment by manipulation of these conditions was not all specialist's work: such cases abounded in general practice, and it was often work which the general practitioner could, if he cared, do efficiently. Much of it, nevertheless, was " a man's job," and required the strength of a man. The paper was followed by a discussion. The completion was announced of a report on the remuneration of insurance practitioners, which had been produced by the National Health Insurance Acts Section of the society. On November 8th Dr. Ernest Jones will give an address on the significance of psycho-analysis in modern medicine.

Reviews

THE " EXTRA PHARMACOPOEIA "

There are few books that have achieved and maintained as great a popularity among members of our profession as has the *Extra Pharmacopoeia of Martindale and Westcott*, and we have much pleasure in welcoming now a new edition of volume i.[1] Next year will be the fiftieth anniversary of this work. It has shown a steady and healthy growth during its long life, for while the first edition was a modest affair of 313 pages, the twentieth contains 1,216. Recent editions have appeared at intervals of four years, and the extensive additions and alterations that have been made in the present issue are proof that the editor, Dr. W. H. Martindale, fully sustains his devotion to an onerous task. All new drugs of importance are described, and a nine-page synopsis of the principal innovations in the new *British Pharmacopoeia* has been included.

The changes in the new edition of the *Extra Pharmacopoeia* provide a fair measure of the progress in pharmacology during the last few years. The number of drugs appearing for the first time is considerable, but at first sight it would seem that few of them are of outstanding value. Various causes, however, serve to make advances in this field less dramatic than formerly. The tendency to-day is for a group of new compounds to be produced rather than a single drug, and the importance of the group as a whole is apt to be obscured by discussions about the relative merits of its members. In the second place, it takes many years for the use of an important drug to be established. The new synthetic antimalarial compounds illustrate the latter point. When the eighteenth edition of the *Extra Pharmacopoeia* appeared eight years ago, the action of quinine in malaria was an excellent example of an effect produced by a natural drug that could not be imitated by any synthetic product. In the nineteenth edition (1928) the synthetic product plasmoquine was described, but its significance was still a matter of doubt. The importance of plasmoquine to-day is undisputed, and a new compound, atebrin, also promises to be of considerable value in the treatment of malaria. The following are examples of important groups of compounds mentioned in the last edition, but whose individual members have increased greatly in number in the present: the pentavalent organic antimonials (used in the treatment of kala-azar and bilharziasis); the hypnotic barbiturates (employed particularly in basal narcosis); the organic gold derivatives (remedies in tuberculosis, and especially in lupus erythematosus); and organic mercurial diuretics. This shows that the flood of new synthetic drugs has not abated during the last few years. There has been an equal activity in the field of organotherapy, and among the host of new products at least two represent real advances in therapeutics—namely, the introduction of dried stomach in the treatment of pernicious anaemia, and the preparation of an active principle from the cortex of the suprarenal gland that produces relief in Addison's disease.

The long and successful career of the *Extra Pharmacopoeia* is the best proof that it has catered for a real need in the medical profession. Modern developments have accentuated this need, because the profession to-day is deluged with advertisements of new preparations of every grade and quality, of which it is almost impossible for the practitioner to assess the value. The *Extra*

[1] *Extra Pharmacopoeia of Martindale and Westcott.* By W. Harrison Martindale, Ph.D., Ph.Ch., F.C.S. Twentieth edition, vol. i. London: H. K. Lewis and Co., Ltd. 1932. (Pp. xlviii + 1,216. 27s. 6d. net; 28s. post free.)

Pharmacopoeia will at least tell him whether some attractive title refers to an important advance in drug synthesis, or whether it is merely a fancy name for some old acquaintance. The great and constant increase in the number of drugs makes the work of the editor more laborious at every revision. We must congratulate Dr. Martindale on the perseverance and endurance with which he sticks to his task year after year. We can assure him that the medical profession is grateful to him for the results of his labours.

FRACTURES IN BRIEF

To treat the subject of fractures in 288 diminutive pages seems at first sight to be an impossible task for any man. We are bound to state, however, that after a careful examination of Mr. W. H. Ogilvie's two little volumes[2] we cannot convict him of serious omissions. Naturally much material had to be omitted, but on all important points the author gives his opinions, and the practitioner will find sound advice offered to him. In such a work as this it was clearly impracticable to include reproductions of radiographs of even typical—let alone rare—fractures, and the practitioner who wishes to consult such guides must turn to the larger treatises on the subject. Also little space could be spared for discussions of diagnosis and none for statistics. Sound general principles of fracture treatment are clearly laid down. The importance of anatomical correction in the restoration of function is not lost sight of. Mr. Ogilvie wisely insists that the treatment of fractures with plates or grafts is not to be considered as an alternative to the use of external splints, but should be reserved for such cases as cannot be satisfactorily treated by other means. He considers that Lane's methods still hold the field where internal splintage is indicated. The advantages of local novocain anaesthesia for reduction, and of the methods of Böhler of Vienna of applying retentive plaster-of-Paris next to the skin and in other details, are pointed out. The value of skeletal traction is duly insisted upon. The practitioner who has learnt the lessons of these two little books will find himself well equipped to deal on emergency with any fracture.

VARIATIONS IN THE REDUCING POWER OF THE BLOOD

Active and successful attempts to estimate the sugar in the blood of sufferers from diabetes have been made ever since Pavy's time, and with the recent introduction of microchemical methods an ease and accuracy of determination has been obtained such that blood-sugar estimations are adopted almost as a routine in the diagnosis and control of treatment of this disease. Assay of the blood at intervals after the ingestion of two or three ounces of sugar shows that the reducing power is considerably enhanced in the next hour or two even in the healthy subject, while in a diabetic patient there is a prolonged and greater increase, and at the same time sugar appears in the urine. From the examination of a large number of curves obtained in this way it has emerged that intermediately between the "normal" and the "diabetic" curves there is a form of curve in which the blood-reducing power remains greater than normal for a prolonged period, and yet does not rise to the heights seen in diabetes mellitus. This "lag" type of curve is observed in obese and in elderly patients. A further study of the reducing power of the blood by Enocksson[3] has led to a further analysis of the variations that occur in disease. The author first shows in a series of contrasted cases that in health the fasting blood sugar remains at a constant level for more than four hours, while in many diseased conditions a slight fall occurs in that time. It is in the determination of the curve of reducing power of the blood after ingestion of glucose or the subcutaneous injection of adrenaline that most of Enocksson's work has been done. After the ingestion of 1 gram of glucose per kilogram of body weight the blood sugar of healthy subjects, estimated by Hagedorn-Jensen's method, rises rapidly to a maximum, on an average to 0.15 per cent., in half an hour, and returns within a little more than an hour to about 0.12 per cent. In cases of malignant tumour of the digestive tract a "lag" type of curve is found; the fasting value is normal, averaging 0.09 per cent.; the hyperglycaemic area is much increased, with a tendency to maximum hyperglycaemia (reaching 0.23 per cent.) at one and one-third hours, and duration of hyperglycaemia of three hours. This gross hyperglycaemia is most obvious in cases of primary affection of the pancreas or liver, though in cases without demonstrable localized lesions in liver or pancreas notable changes in the shape and height of the hyperglycaemic curve are found. The only exception is where there is pyloric obstruction, when delay in emptying the stomach may prevent a rise of blood sugar after the glucose test. In cases of gastric or duodenal ulcer there is often an increase of the hyperglycaemic area.

Enocksson's tests of glycaemia after subcutaneous injection of 1 mg. of adrenaline showed a rapid rise of blood sugar in healthy patients, reaching a maximum in a little more than an hour, with a hyperglycaemic area which exceeds by many times that of the glucose test. In cases of malignant tumour the adrenaline test generally shows a less glycaemic effect than in healthy subjects. It is by contrasting the hyperglycaemic effect of glucose and adrenaline in the same patient that the author brings forward results which may be of value in diagnosis. In diabetic cases there is increased hyperglycaemic area following glucose as well as adrenaline tests; the adrenaline area is smaller than that produced by glucose. In cases of hepatic involvement there is increased hyperglycaemic area after glucose, but diminished hyperglycaemic area after adrenaline as compared with normal controls; the adrenaline area is smaller than that following glucose. In toxic cases (pneumonia, tuberculosis, pyrexia) both glucose and adrenaline hyperglycaemic areas are less than normal, and these areas about equal each other. The author hopes that his results may help in diagnosing cases of cancer; they may better help, however, in elucidating liver disease.

CONGENITAL SYPHILIS

In writing a book an author usually has some definite object in view. Drs. Jean Hutinel and Alice Linossier-Ardoin, in The Diagnosis and Treatment of Congenital Syphilis,[4] have not made their intentions very clear. If the book is written for students or general practitioners there are too many problems unsolved, and something more dogmatic might have been included; if it is for specialists, then the inadequate discussion of the pathology

[2] *Treatment of Fractures in General Practice.* By W. H. Ogilvie, M.D., M.Ch., F.R.C.S. Vols. i and ii. Pocket Monographs on Practical Medicine. London: John Bale, Sons and Danielsson, Ltd. 1932. (Pp. 108 and 180; illustrated. 2s. 6d. per volume.)

[3] *A Study of the Reducing Power of the Blood, with Special Reference to some Gastro-Intestinal Diseases and their Diagnosis.* By Birger Enocksson. *Acta Medica Scandinavica.* Supplementum xlv. Stockholm: P. A. Norstedt und Soner. 1932. (Pp. 370; illustrated.)

[4] *L'Hérédo-Syphilis: Clinique et Thérapeutique.* By Dr. Jean Hutinel and Dr. Alice Linossier-Ardoin. Monographies de Pédiatrie et de Puériculture. Paris: Gauthier-Villars et Cie. 1932. (Pp. 302; 7 plates. 35 fr.)

of the various lesions detracts from its value. It seems probable that the authors are young and enthusiastic, but somewhat inexperienced—they will do better next time.

The subject is dealt with thoroughly and systematically, each system or organ being discussed in turn under "early" and "late" headings. Part I is devoted to signs and symptoms, with a short article on serology; the latter runs to a mere fourteen pages, and might have been considered adequate ten years ago. Part II deals with treatment in an equally categorical manner, and is of a higher standard than the first part. The whole trend of the book is exclusively French, and lists of authorities—perhaps famous in France but little known outside—are almost bewildering in their length and frequency; names are many but references few. There seems to be a general tendency to ascribe to syphilis every malady of the child or young adult which cannot otherwise be explained; where the affection cannot directly be caused by syphilis it is attributed to a syphilitic "taint." Whilst there is little doubt that the importance of the ill effects of congenital syphilis is insufficiently realized by many, it seems highly dangerous to go to the other extreme and see the disease at the back of every childish dystrophy.

The book contains much sound advice interspersed with much more that is debatable. It would appear that the authors have a very good grasp of their subject, but have not been very happy in their presentation of it. There is a great deal of repetition, and the inexperienced will have considerable difficulty in sifting the small amount of wheat from the large amount of chaff.

THINGS IN GENERAL

A very remarkable, fascinating, and at times irritating volume is *An Outline for Boys and Girls and their Parents*,[5] edited by Mrs. Naomi Mitchison, and contributed to by a large number of her friends, whose portraits (or caricatures) are given, together with amusingly expressed details of their families and activities. These, no doubt, to many junior readers, will aid the intimate and familiar touch which is maintained effectively throughout the book. The "outline" of the title can best be described as being one of things in general—science, art, civilization, economics, in the past, the present, and the future. It is only an outline, but it presents an amazing amount of instruction delightfully displayed for young and old alike, but especially the former. The first part of the book is by far the best. Here we begin in what is emphatically the right order with science, and with biological science at that. This is the basis and the pivot of the whole presentation, and this has rarely been so definitely asserted and demonstrated as in the editorial management of this outline. We have "What Science can do," "Physiology," "Psychology," "Biology," followed by "Chemistry," "Physics," "The Structure of the Earth," and then by Part II "Civilization," and Part III "Values." Some of these earlier articles are excellently done by members of the medical profession—Drs. Winifred Cullis and Evelyn Hewer, for instance. It is in the latter part of the book that some of the contributions offer more material for objection; not that they are in the least uninteresting in themselves, but that they have a decided bias which it is scarcely fair to impose upon the youthful mind, or that they almost wholly ignore important aspects and regions of their subjects which ought not to be withheld from its ken. Yet what an amazing and abundant and provocative store of knowledge it is, and all for 8s. 6d.

[5] *An Outline for Boys and Girls and their Parents.* Edited by Naomi Mitchison. London: Victor Gollancz, Ltd. 1932. (Pp. ix + 916; 135 figures. 8s. 6d. net.)

MEDICAL MSS.

It had long been known that the library of the Medical Society of London contained a number of medical manuscripts. They lay unregarded and scattered until Mr. Haines Carter, the energetic and indefatigable registrar, caused them to be assembled and bound. Being thus made presentable, he enlisted the services of Mr. Warren Dawson to examine and describe them. The results of this examination are now published.[6] The manuscripts are bound into 164 volumes. Some of them have been in the possession of Dr. Askew (1722–74); others belonged to Dr. Sims (1741–1820); and others again to John Coakley Lettsom, one of the founders of the society. None of them are of very great interest, and many are merely transcripts of the lectures of such great teachers as Hermann Boerhaave and Monro (primus). These are mostly in Latin, but there are also some Greek manuscripts, which were described by Dr. J. B. Nias in 1904. Mr. Dawson has done his work well and thoroughly. He assigns a number to each, states its size, the number of folios of which it consists, whether it is written on paper or vellum, and adds a short abstract of contents. Perhaps the most interesting manuscripts are a Leechbook in a neat uncial script of the fifteenth century, and the minute books of the Lyceum Medicum Londonense, a society established in 1785 under the patronage of John Hunter.

Notes on Books

Alcoholic Fermentation,[7] by Arthur Harden, describes the scientific study of the subject of that name—a study which is centred in the biochemistry of the enzymes secreted by yeast. Since the discovery that the formation of alcohol from sugar could be induced by non-living matter obtainable from yeast, the field of research in matters relating to fermentation has been enlarged beyond the scope of all previous thought. The focus of this study has been the chemistry of particular enzymes and the reactions which they induce, for it is found that yeast generates a number of enzymes which differ not only in the nature of their action, but are, in at least one case, interdependent on each other for the development of their activities. Beginning with a historical survey, supplying methods of experimental demonstration, and setting forth the theoretical views which have been adduced in explanation of observed effects, the author describes the whole subject fully. There are exhaustive bibliographical references.

The title of Dr. Haggard's book is misleading. *The Lame, The Halt, and The Blind*[8] find little or no mention in its pages. The subtitle is more relevant, for it has to do with the role of medicine in the history of civilization. It is a popular work, written in a colloquial style and in a rather disjointed way, inculcating hygiene and medical inspection, enforcing its lessons by references—not all too exact—to the past, and especially vaunting the achievements of American medical and scientific workers. Probably some of the characteristics of the book are to be accounted for by the fact that many of the chapters were taken from material prepared by the author for the medical division of the Eastman Kodak Company. It is freely illustrated with reproductions of prints, the interest of which would be much enhanced if more exact references to their origin were provided. This is particularly noticeable as regards the illustration on page 156, en-

[6] *Manuscripta Medica.* A Descriptive Catalogue of the Manuscripts in the Library of the Medical Society of London. By Warren R. Dawson, F.R.S.E., F.R.S.L., F.S.A.Scot. London: J. Bale, Sons and Danielsson, Ltd. 1932. (Pp. 140. 15s. net.)

[7] *Alcoholic Fermentation.* By Arthur Harden, Ph.D., D.Sc., LL.D., F.R.S. Fourth edition. London: Longmans, Green and Co. 1932. (Pp. vii + 243; 10 figures. 15s. net.)

[8] *The Lame, The Halt, and The Blind. The Vital Role of Medicine in the History of Civilization.* By Howard W. Haggard, M.D. London: W. Heinemann (Medical Books) Ltd. 1932. (Pp. xxiv + 420; illustrated. 21s. net.)

titled "Burning a witch." The subjacent legend states that "The demented woman shown in this illustration, *made from the actual scene* [the italics are ours], was convicted of witchcraft and burnt in 1882: it was the last case of its kind in Scotland." We should much like to know the provenance of the print. The last burning for witchcraft in Scotland occurred in 1727 at Dornoch in Sutherlandshire, and it seems unlikely that an artist was present to sketch the scene, and neither the style of the drawing nor the dress of the figure suggests the first quarter of the eighteenth any more than the last quarter of the nineteenth century. But one must not be too hard on such a collection, which is much better than we were led to fear from the publisher's jacket.

Volume X of the *Guide to Current Official Statistics of the United Kingdom* is now available. It contains a list of the titles and prices of the statistical volumes issued during 1931 by the Governments of Great Britain and Northern Ireland, and an alphabetical index of their contents. An indication is given of the degree of detail in which the subjects are treated and of the time and place to which the statistics relate. Copies can be obtained from H.M. Stationery Office (1s. net).

In the *Journal* of July 2nd (p. 24) reference was made to the last report of the Advisory Committee on the Traffic in Opium and other Dangerous Drugs to the Council of the League of Nations. This report is now published in England by Allen and Unwin (40, Museum Street, W.C.1) price 4s. The same publishers also supply the minutes of the fifteenth session of the Advisory Committee held at Geneva from April 15th to May 4th, price 5s.

The *Transactions* of the St. John's Hospital Dermatological Society (London, 1932, John Bale, Sons and Danielsson, 2s. 6d.) includes reports of papers and discussions, and the text of Sir Thomas Lewis's oration on Raynaud's disease, with special reference to the nature of the malady.

Preparations and Appliances

A SURGICAL PUMP

Dr. L. T. Clarke (Birmingham) writes:

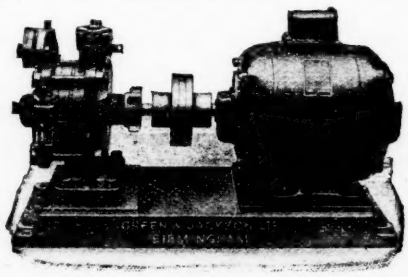
There are several very excellent electrically driven pumps which supply positive and negative pressure for surgical purposes, but unfortunately in most cases the makers have sacrificed other considerations for the sake of portability. Portability is of prime importance to the anaesthetist who requires the pump for his private practice, but these same pumps rarely show that sturdy construction which fits them for the routine gruelling work of a hospital operating theatre. Dismissing the need for portability, the following essentials of the perfect surgical pump for hospital purposes suggest themselves:

1. The pump must be capable of running intermittently or continuously for three or four hours without overheating.
2. Its positive pressure must remain undiminished when the negative pressure is being utilized for suction.
3. It is desirable that the air delivered on the positive side should not be contaminated by the foul air sucked in at the negative port.
4. The pump should not need an oily lubricant, for otherwise oily vapour might contaminate the air delivered at the positive port, and become a factor in the production of post-anaesthetic vomiting.
5. The pump should be silent.
6. Its controls and working parts should be practically "foolproof."

I submitted this problem to a pump engineer, and after due consideration his firm designed and installed a pump in the Queen's Hospital, Birmingham, which has now been in constant use for nearly six months without adjustment or breakdown. The following is a brief description supplied by the designers.

The pump operates on the centrifugal principle, and is capable of producing continuously the necessary air pressure free from pulsations. The vacuum, although set in the first instance to deal with ordinary requirements, will, when required, build up in intensity to overcome resistance such as clot or coagulated material. A salient feature is that, being of the centrifugal type, it is entirely free from the elements of breakdown, such as pistons, piston rings, automatic valves, springs, etc. Apart from lubrication of the motor bearings, only necessary at long intervals, the set requires no attention. The pump itself is noiseless, and the motor only emits a faint hum.

At the Queen's Hospital the set is mounted outside the theatre, on the principle that wherever possible electrical apparatus should be removed from the vicinity of ether vapour. In the theatre itself is the controlling switch and two small diameter tubes, which pierce the wall—the positive and negative ports. To these ports are attached rubber tubes, which are conveyed by a swinging arm, rather like the service arm of a petrol pump, and from the free extremity of which they fall vertically to the anaesthetic table.

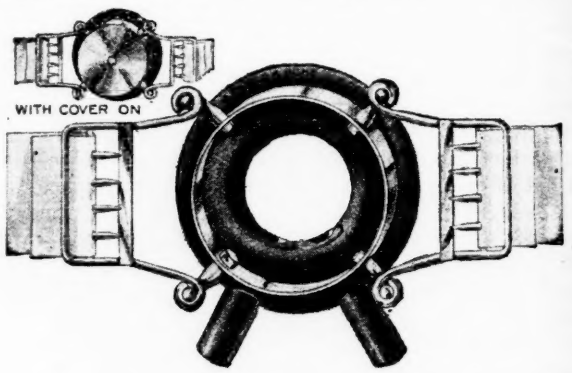


The installation has been designed and carried out by Messrs. Green and Jackson, Ltd., of 12, Cherry Street, Birmingham, and among other things we acknowledge their courtesy in naming it the Q.H.B. (Queen's Hospital, Birmingham) pump.

PAD FOR SUPRAPUBIC BOX

Mr. Frank Harvey, F.R.C.S. (London, W.) writes: Since introducing the sponge-rubber pad attachment for a Hamilton-Irvine suprapubic box (*British Medical Journal*, February 7th, 1931, p. 227) I have endeavoured to modify the apparatus so as to make it simpler and lighter. Mr. J. Alban Andrews has also been working with the same object in view, and I am indebted to him for some of the principles incorporated in the new apparatus.

It consists of a round, instead of an oval, pad, which has the advantage of lying in better apposition on the patient,



especially in thin subjects. The rubber tubes are fitted with D-shaped metal linings, giving a better surface for contact, and are more comfortable than the round type. The rubber flange is made of thicker rubber, and is placed at right angles to its position in the original pad. On the outer and inner surfaces of the flange are two metal rings, half-inch in height, kept in position by four bolts, passing through the rubber flange, and are prolonged externally to act as hooks for the buckles attached to an elastic webbing belt, which keeps the apparatus in position. (See illustration.) These buckles are made of metal, and are easily kept clean.

I have found the new apparatus to be an improvement on the old, both as regards being more comfortable for the patient and also for keeping him dry. It is made by Messrs. Arnold and Sons (John Bell and Croyden), 50-52, Wigmore Street, W.1, and my thanks are due to Mr. Olliver of that firm for helpful suggestions.

British Medical Journal

SATURDAY, OCTOBER 29th, 1932

THE PSYCHOLOGY OF DELINQUENCY

Although it has long been recognized that conduct is the expression of a state of mind, and although misconduct is, of course, merely a particular form of conduct, the fact that delinquency must also have a psychological basis would appear to be by no means generally realized. The penal systems of most countries are still concerned more with the crime than with the criminal—with the dealing out of more or less stereotyped sentences for the offence rather than with measures for reforming the offender. It is true that legal punishment is nowadays professedly inflicted with the idea of acting as a deterrent rather than of exacting vengeance, as was formerly the case ; but the conditions of prison life have been so greatly ameliorated during recent years that it is doubtful whether imprisonment now has much, if any, preventive effect. In short, it seems probable that we have reached a stage when legal punishment has practically ceased to be deterrent of crime without exerting any reformative effect upon the criminal. In these circumstances it is not surprising that judges should deplore the increasing spread of lawlessness throughout the country, particularly among adolescents and young adults. Clearly, if crime is to be prevented, measures for reforming the criminal must be adopted, and these must be based upon an accurate knowledge of the psychological factors underlying delinquency.

During recent years numerous investigations have been made into this subject, and the report of an inquiry conducted by Dr. Grace W. Pailthorpe has now been issued by the Medical Research Council.[1] This report is based upon a detailed study of the life history and mental condition of 200 females between the ages of 16 and 30 years. Of these a hundred were inmates of prisons, their offences being chiefly larceny, prostitution, drunkenness, and vagrancy. The remaining hundred were inmates of preventive and rescue homes in London. Dr. Pailthorpe describes the conditions which she found existing under three headings—namely, "defective," "psychopathic," and "adapted." For our present purpose it may, however, be more convenient to consider them according to (1) the amount of general intelligence, (2) the degree of development of social sentiment, and (3) the presence of psychopathic states. These three groups are, of course, not mutually exclusive, and a considerable amount of overlapping occurs. With regard to general intelligence there was found to be a rather marked difference between the inmates of prisons and those of rescue homes. Taking the cases altogether, however, 56 per cent. were of normal and 34.5 per cent. of subnormal intelligence, and 9.5 per cent. were mentally defective. One of the most striking results revealed by the inquiry was the large proportion of inmates in whom the moral and social sentiments were inadequately developed. In only 16.5 per cent. was this found to be "normal," whilst partial development occurred in 35.5 per cent. and rudimentary sentiment in 48 per cent. The chief psychopathic states found were, in order of frequency: phobias, negativism, violent tempers, fantasy, depressions, kleptomania, migraine, and suggestibility. Evidence of some psychopathic, psychoneurotic, or epileptic condition was found in 77 per cent. of all the cases, although in many there was also defective intelligence or sentiment. In each one of these cases some abnormality of behaviour or psychic instability could be traced back to childhood. An investigation of the home conditions showed that in the cases as a whole these were satisfactory in 47 per cent., and vicious or unsatisfactory in the remainder. Dr. Pailthorpe describes twenty of her cases in considerable detail, and concludes her report with suggestions for a scheme for the systematic examination, treatment, and disposal of cases by means of a central clearing station and various ancillary departments. She considers that in no fewer than 111 of the total number of persons she examined some form of psychological treatment is needed.

While this report contains much that is of interest, it is very necessary that one should not fall into the error of drawing conclusions from it as to the psychology of delinquency in general. The cases investigated are too few in number, they relate to one sex only, and they are drawn from too restricted a class to permit of this. It is highly desirable, moreover, that these figures should be compared with controls relating to the non-delinquent population. It is also probable that another observer, approaching the same series of cases from a different angle, might arrive at somewhat different conclusions. For instance, it seems not unlikely that an investigator who had a wider conception of the nature of mental deficiency might regard a considerable proportion, if not the whole, of the cases classed as subnormal in intelligence as being in reality mental defectives. It is not without significance that Dr. Pailthorpe finds the intelligence quotient of this group to be between 50 and 75—a mental ratio which many persons would regard as denoting mental defect. If this were so it would follow that about 40 per cent. of the cases here investigated could, and should, be dealt with under the Mental Deficiency Acts. Then again, other observers might be less optimistic as to the beneficial results of psycho-analysis or other forms of psychotherapy in these cases. They might consider that the prime cause of the delinquency, and of many of the psychopathic states, really lay in the defective development of social sentiment which is present in such a large proportion, and that this in turn was the outcome of faulty upbringing and bad home conditions. On this view they might consider that the real

[1] Studies in the Psychology of Delinquency. By Grace W. Pailthorpe, M.D. Issued by the Medical Research Council, Special Report Series, No. 170. 1932. Also a popular presentation of the subject by the same author, entitled *What we Put in Prison*. London: Williams and Norgate. 1932. (Pp. 159. 5s. net.)

prevention of delinquency would most surely be attained by the improvement of home conditions, the instruction of parents as to the management of their children, and the operation of clinics for child guidance. The matter is obviously one of great importance, and it is highly necessary that the whole subject of the psychology of the delinquent should receive thorough and careful investigation.

THE MILK PROBLEM IN AMERICA AND FRANCE

The problem of providing safe and good milk for children has been attracting attention in other countries besides our own, and it is interesting to compare the differences in outlook between America on the one hand and France on the other. The Committee on Bovine Tuberculosis of the People's League of Health,[1] while it dealt primarily with one important aspect of the milk supply, covered much ground that is common to all campaigns for purifying milk, and its conclusions, though not restricted to the supply for children, are of interest when read with accounts relating to the efforts of other countries towards child welfare. The report of the P.L.H. committee found the incidence of bovine tuberculosis in cattle, and its spread via milk to children, to be an extremely grave problem ; and it put forward many helpful co-ordinated suggestions by which the disease could be slowly but surely eradicated from milch cattle and the supply of safe raw milk increased. Pasteurization of ungraded milk was advocated as a temporary safeguard until more radical precautions had been established, and the committee suggested that large local authorities should have the power to enforce the pasteurization of milk entering their areas.

The recently published report of the Committee on Milk Production and Control of the White House Conference on Child Health and Protection[2] offers a striking contrast. The report of the subcommittee on diseases transmitted through milk dismisses tuberculosis in just over two pages (in a subheading to milk-borne diseases). It recounts that the Federal Government, in co-operation with the States, undertook in 1917 to eradicate bovine tuberculosis by the accredited herd plan, that large areas have been freed from the disease, and that the work is progressing rapidly. Meanwhile, health officials insist on pasteurization. Throughout the report the attitude towards pasteurization is wholeheartedly favourable, and the subcommittee on nutrition could find no fault with it, except that it diminished the supply of vitamin C. Although admittedly pasteurization is not intended to take the place of the sanitary production of clean and wholesome milk, but rather to provide the final factor of safety, every subcommittee advises health authorities to recommend it. America is possibly better off than this country, in that municipalities are much more autonomous and have power to enforce whatever precautionary measures they think fit. They are recommended to apply a code known as the Standard Milk Ordinance, which has been drawn up by the United States Public Health Service, and to supervise the inspection of farms and plants, the testing of cows, the examination of milk, workers, and residents at farms, and the control of pasteurization. There is much to be said for a similar decentralization in this country.

Judging by an address delivered by an eminent authority,[3] France has paid less attention to the hygiene of milk than either this country or the United States. Professor L. Barthe, secretary of the Hygiene Council of the Department of the Gironde, states that public opinion does not concern itself with anything beyond the chemical composition of milk, and that legislation is only directed against adulteration and shortage of cream. Professor Barthe, a staunch advocate of pure raw milk for newborn infants, and an opponent of pasteurization, finds it almost impossible to secure milk that is pure enough to give them. He considers that far too much attention is paid to bovine tuberculosis and the risk of transmitting it to children through milk. He quotes a saying that in every case of tuberculosis that has been traced through, there has always been a family history of the disease in a parent or grandparent. According to him the bovine bacillus is hardly ever found in man, and, although pasteurization will kill it, it will not kill the spores. Further, pasteurization destroys most of the vitamins, the soluble ferments, and the enzymes, and brings about changes in the casein and lecithin. Professor Barthe attacks a form of adulteration of milk which has not been much noticed in this country—namely, the addition of bicarbonate of soda to delay souring. He enumerates a number of tests which can be practised by lay persons to ensure the presence of the proper content of catalases and reductases, and recommends microscopical examination for blood cells, without, however, mentioning micro-organisms. He considers that milk which passes these tests can be considered fit for infants. Broadly speaking, neither the French nor the American view seems satisfactory when judged by our standards ; but if the American plan is really having the results which are claimed for it we should do well to study American methods.

[1] *British Medical Journal*, 1932, i, 944.

[2] *Milk Production and Control*. A publication of the White House Conference. New York: The Century Co.; London: D. Appleton and Co. 1932. (Pp. xvii + 392. 15s. net.)

[3] *Journ. de Méd. de Bordeaux*, 1932, cix, 655.

OFFICE INTERNATIONAL D'HYGIÈNE PUBLIQUE

Sir George Seaton Buchanan, C.B., M.D., F.R.C.P., senior medical officer of the Ministry of Health and delegate for the United Kingdom, has been appointed president of the Permanent Committee of the Office International d'Hygiène Publique, in succession to the late M. Otto Velghe, secretary-general of the Ministère de l'Intérieur et de l'Hygiène at Brussels, who had held that office continuously from 1919 until his death at Geneva, which occurred suddenly whilst he was attending the session of the Health Committee of the League of Nations on October 11th. The Office International d'Hygiène Publique, it will be remembered, was established by the International Convention of Rome, 1907,

and its Permanent Committee consists solely of the technical delegates of the participating Governments. The number of States adhering to the Convention of 1907, whether members or non-members of the League of Nations, has increased considerably within the last ten years, with the result that the total of the participating Governments is now fifty-one, and the representation is practically world-wide. The Office is principally concerned with technical and administrative matters arising out of the numerous international conventions and agreements on health questions, of which the International Sanitary Convention, 1926, is the chief. Its Permanent Committee, which meets twice a year in Paris, is also the Advisory Council of the Health Organization of the League of Nations.

NATIONAL HEALTH INSURANCE

Sufficient attention has not been paid, either by the medical profession or by those who, centrally and locally, are responsible for public health and public assistance administration, to two important pronouncements made at the Congress of the Royal Sanitary Institute at Brighton in July last. They are: the presidential address by Sir William E. Hart to the National Health Insurance Section of the Congress; and a paper on "The medical treatment of the sick poor," contributed to the same Section by Mr. W. M. Marshall, secretary to the Scottish Association of Insurance Committees. No two laymen can speak on these subjects from a wider experience or with a higher authority than these, and what they have to say about the extension of the national health insurance system to the dependants of insured persons and to the sick poor, and about the methods by which this should be accomplished, is of the utmost value, and should be weighed carefully by the profession, by administrators, and by Members of Parliament. Though they recognize, of course, that these extensions must wait upon economic improvement, they have no doubt whatever as to their need and urgency. They are anxious that during the waiting period these matters should be kept in the forefront of public discussion, and should be the subject of detailed conferences of those most immediately interested, not merely in order that full preparation shall be made for a move forward immediately circumstances become more propitious, but lest the ground should in the meantime be occupied, and public policy settled, by the establishment of schemes of local authorities upon opposed or less satisfactory lines. Mr. Marshall lays down two propositions for guidance: "That the public health service should not be encouraged in the appointment of increasing numbers of officials devoted to particular duties and circumscribed by the attachment to special services," and "That it is in the interest of medicine no less than of those requiring treatment that the present system of general practice should be preserved." Sir William Hart, in effect, endorses the same propositions as essential requirements for the extension of medical benefits and for the establishment of a general medical service for the nation. There are many sentences and arguments in these two papers which are well worthy of quotation and of broadcasting; and they should not be left to their seclusion in the report of Section G of the Congress of the Royal Sanitary Institute.

RECENT KNOWLEDGE ON VITAMINS

Last spring Professor J. C. Drummond delivered a series of lectures to the Royal Society of Arts on recent researches on the nature and function of vitamins. These lectures contain a clear and concise account of the modern work on this subject. In the first place, there has been a remarkably steady advance in our knowledge of the chemistry of vitamins: A, D, and B_1 have been isolated. It has been claimed that vitamin C is an activated form of narcotine, but this has been disputed. The isolation of these vitamins has revealed the fact that the amounts required to produce a recognizable effect are amazingly small. Six years ago it was known that the minimum effective rat doses of vitamins A and D were less than one-tenth of a milligram, but it is now known that they are less than one-ten-thousandth of a milligram. The fact that doses of this magnitude can produce a general effect on the development of the body calls for a considerable revision of our conceptions regarding the possibilities of drug action. Vitamin B appears to be showing a capacity for infinite division. Six factors are recognized in what is now termed the "vitamin B complex." This multiplication raises the suspicion that substances with the same general physiological characteristics as vitamins may be much more numerous than has hitherto been suspected. In his last lecture Professor Drummond considered the practical problem of the supply of vitamins in human diets. Milk is the chief source of the fat-soluble vitamins during childhood, and the vitamin content of cow's milk depends on the vitamin supply of the cow. The recent discovery that vitamin A is formed from the pigment carotene provides a sound reason for the popular preference for butter with a full natural colour. Professor Drummond points out that steps should be taken to prohibit the colouring of butter with pigments other than carotene. As regards margarine, he states: "There are brands of margarine on the market to-day which are fully the equivalent of good butter as far as vitamins A and D are concerned, but I believe I am correct in stating that the majority, if not all, of the cheaper grades are vitamin deficient." As regards the vitamin B complex, the lecturer concluded that the diet of the urban population of this country was, as a whole, deficient to a greater or less extent. He drew attention to the experimental evidence proving that prolonged partial deficiency of vitamin B caused degeneration and loss of tone of the walls of the alimentary canal. In conclusion, the lecturer pointed out also the desirability of an accurate survey of the diets of typical urban populations with a view to obtaining accurate information about the consumption of vitamin-containing foods.

"PILLARS OF SURGERY"

Sir W. I. de C. Wheeler delivered the Murphy Oration on October 17th at St. Louis, U.S.A. He had come, he said, to lay a wreath from Ireland on the tomb of remembrance. Lord Moynihan had stated in the first oration that J. B. Murphy was the greatest clinical teacher of his time, and with this the speaker fully agreed. All Murphy's emphatic dicta were followed by explanations which, to the minds of his readers, put their accuracy beyond the realm of doubt. Murphy

was proud of his button. Like Lane's bone plates, however, it was but a signpost in the progress of surgery—signposts were soon passed by and lost in oblivion. These two were, nevertheless, interesting examples of how the chain of surgical progress was forged. Sir William Wheeler carried his audience back two thousand years, to the time when the King of Ulster was operated upon by Fingen, being stitched with threads of gold "because the colour of his hair was the same as gold." Passing to more recent times he told anecdotes of the lives of Colles, Corrigan, Graves, Stokes, Butcher, Swanzy, Bennett, McArdle, and Wheeler (the lecturer's father). Butcher's great eminence as a surgeon had never been adequately recognized by biographers. His manuscript notes were in Sir William's possession, and were a record of indefatigable industry and profound surgical acumen. In the second part of his address the lecturer dealt with a number of surgical problems which had arisen in Butcher's old hospital—Mercer's Hospital, Dublin—in recent years. On the subject of the surgery of the blood vessels he mentioned ligature of the innominate artery for subclavian aneurysm, and recorded a recent successful case. The wiring of abdominal aneurysms had resulted in two cures, one patient living for eighteen years after the operation. The general question of back pressure on organs, such as arose when the urine was dammed back by enlargement of the prostate, was also dealt with. Back pressure had a wide significance, and needed attention in such far apart realms of surgery as glaucoma, hydramnios, and cerebro-spinal lesions. In concluding his oration Sir William Wheeler called attention to the embryology of some rare conditions found in connexion with the larynx. He also detailed some interesting signs and symptoms exhibited by a patient who suffered from the effects of a bullet lodged in the association centre in the brain. The bullet was removed four years after the wound, and recovery was complete. Many questions of surgical interest were discussed, including the treatment of Hirschsprung's disease, renal cysts, and recurrent prostatic enlargement.

GUILT AND CIVILIZATION

The National Council of Mental Hygiene has provided an interesting series of lectures in its autumn programme, which began on October 12th. It was a striking coincidence that Dr. Mary Barkas should give her address on "guilt" on the day when two motor bandits were sentenced for attacking and attempting to rob a traveller on the high road. No better illustration could have been found for the psychologist who claims that the maintenance of security depends on the application of mental hygiene to the criminal problem. One of these bandits was a mental defective who had five times escaped from homes; the other was a youth who, according to the learned judge, appeared to have made up his mind to devote himself to a life of crime. He typified the class of young adult whom Dr. Barkas described as having failed to develop a sense of guilt. The first stage in the child's social adaptation is the development of fear of punishment. He fears the consequences of an act which he has proved by experience to be unpopular with authority, but cares nothing for the disapproval of the environment. In the belief that many criminals have an arrested sentiment development corresponding to this stage, eminent criminologists advocate sentences which include corporal punishment. Only time can show whether this will in fact be effective. It must be obvious to everyone that there is a better way if some means of attaining it can be found: that is, to develop in the criminal the sense which is found in the older child and in the dog—the sense of guilt, of fear, of the disapproval of society. As soon as the child begins to recognize itself as an individual with a will of its own it feels a sense of guilt, because it immediately sets its own will against that of its parents. If the sense of guilt prevails and the child fails to assert its will it never grows up; if the sense of guilt is defied or overcome, the child becomes a rebel against society. The solution for this impasse lies, said Dr. Barkas, in creative activity. The child is guided by wise teachers into forms of self-expression which forward the cause of civilization instead of opposing it. The present widespread unemployment must play a large part in preventing young people from finding the civilized way out of what is in fact a very normal stage of developmental conflict. It is the duty of every citizen who cares for the conditions of security which past generations have ensured to him to think carefully about the problems which Dr. Barkas and the lecturers who follow her are discussing. The aim of the course, she said, was to consider how to deal with social problems in such a way as to produce a happy social life and to help the next generation. This is a problem for every man and woman, and not one to be left only to professional psychologists.

THE G.P. AND PART-TIME PUBLIC HEALTH SERVICE

It has been admitted by public health officials that in this country the smooth and effective working of a health service depends in the long run upon the presence in the community of a competent and public-spirited body of general practitioners. In this opinion the practising members of the profession will modestly concur. With good will on both sides it might reasonably be expected that a full measure of co-operation between the medical officer and the practising doctor would have been the rule in sanitary areas. The facts in some instances, however, seem to point in the opposite direction, since practitioners have voiced the complaint that despite every readiness on their part they have, in the development of health schemes under recent statutes, been denied part-time participation in duties which were well within their competence. A commentary on the question at issue, affecting a country which in its medical outlook is probably more akin to the United Kingdom than any other foreign nation, is afforded by the report on public health organization in the United States, to which reference is made elsewhere in this issue (p. 806). The reporting committee, largely medical, and consisting for the most part of men in important official positions, recommend that State and local authority health departments should consult with the medical profession regarding health schemes, and that State and local medical associations should appoint advisory committees to confer with State and local medical officers. They disapprove of the employment in public health administration of any method which would tend to destroy the confidence of the community in the medical profession. They think that the work of health centres

and clinics should be conducted in such a way that their service is integrated with the routine practice of local physicians, without at the same time interfering with the time-honoured relations between practitioners and their patients. The success of the local medical officer of health in preventing disease and disability is dependent upon the quality of the services which the local practising physicians render to their patients. Among these services should be included the use of immunization procedures. When medical schools instruct their students in the art of rendering these services, and when the teaching is put into practice by physicians, many of the present public health problems will be well on the way to solution. Health departments, except in cases of emergency, should only assume control of immunization when medical practitioners cannot provide it. In the course of their inquiry the committee took the opportunity to ascertain the feeling of the medical officers of health of 186 important American cities as to whether any public services now carried on by health departments could or should be taken over by the private doctor. One-third of the medical officers approached said that in their judgement none of their activities should be turned over to general practitioners. Two-thirds expressed the opinion that certain departments of their work could gradually be transferred, immunization, and especially immunization against diphtheria, to be among the first: 18 per cent. of the medical officers took the view that child hygiene might become a function of the general practitioner. A few apparently went so far as to say that most of their duties could gradually pass into the private doctors' hands. The general attitude of the medical officers was that there is need for a system of co-operation between health departments and organized medicine, yet one-third of their number, when it came to a question of surrender, felt unable to let anything go! To be strong in principle but reluctant in practice is a human failing which is rather apt to stand in the way of reform. As regards the views of the committee themselves on the role of the practitioner in the public service, they are clearly in favour of his part-time employment in every possible way. Since they consider that the success of the medical officer depends on the quality of the general practitioner's service, such a conclusion is entirely logical, and would appear to follow also from the opening sentence of this note.

POLIOMYELITIS

The Ministry of Health, in an official announcement issued on October 24th, states that there has been since August a slight rise (which was anticipated) in the incidence of poliomyelitis, though up to the present the cases have as a whole appeared singly and widely scattered. The Ministry has, however, received certain inquiries as to the wisdom or expediency of closing residential schools in which such isolated cases may have occurred. The Ministry is definitely of the opinion that the balance of advantage is in favour of not closing a residential school in which poliomyelitis has appeared. If the school be closed any potential infectiousness of the disease is more widely distributed, and passes beyond such means of supervision and control as are furnished in a well-equipped residential school conducted on hygienic lines.

MEDICAL PUNDITS AGAIN

Newspaper readers can scarcely complain that they are ill supplied with red-hot information about medical science and medical politics. Dr. Gerald Slot and Sir Ernest Graham-Little almost had the *Evening Standard* to themselves the other day. One of them was talking at one institute and the other at another institute, and within an hour or two their words were in print for the edification of the public. "I can't think who puts these things in," said Mr. Vincent Crummles to Nicholas Nickleby; and Dr. Slot and Sir Ernest must have shared his bewilderment if they read the *Evening Standard* on October 19th or subscribe to a press-cutting agency. Dr. Slot had a full-page heading and four subheadings: "Doctor's Warning on Slimming Perils. Women Fashion Slaves. Consulting Rooms 'Filled by Sufferers.' Weight and Diet. Some Hints on Choosing the Ideal Menu." Sir Ernest Graham-Little was not quite so well served, but the report of his speech appeared in a prominent position on page 2 and was headed: "Doctor Attacks the B.M.A. Sir E. Graham-Little on 'High Priests of Medicine.'" It was rather a disappointment to find under this attractive cover a plate of cold hash about medical patents and "subsidized research."

PREVENTIVE PAEDIATRICS

The proceedings of the first meeting of the International Association of Preventive Paediatrics, held at The Hague in September, 1931, have now been issued in a booklet. This association, which was brought into existence at the meeting, is in reality the medical section of the "Union Internationale de Secours aux Enfants," and some doubt was expressed at The Hague as to the advisability of another international organization on similar lines to the existing International Paediatric Association. However, Professor Jundell's objections seem to have been overruled at the final meeting, and the next conference is to be held at Geneva. The discussions at the Hague meeting were concerned with infantile mortality in the early days of life and with the prophylaxis of scarlet fever. Among the British delegates Dr. Hazel Chodak Gregory made a valuable contribution towards the former subject, emphasizing the supreme importance of the obstetrician and pre-natal specialist. In the discussion on scarlet fever Dr. B. Schlesinger spoke of the advantages of active and passive immunization, and Dr. J. D. Rolleston gave his experience of "return cases." Another British delegate, Dr. Jean Smith, was responsible for the chairmanship at one of the sessions. The conclusions of the conference on these subjects, as well as the new articles of association, are given in English, French, and German, and there is much valuable material in the full reports of the discussions.

We have to announce with regret the death of Dr. A. Freeland Fergus, consulting ophthalmic surgeon to the Glasgow Eye Infirmary.

We regret to announce also the death of Dr. J. H. Taylor of Salford, joint author with Messrs. Carr and Garnett of the book *National Insurance*, published in 1912.

PUBLIC HEALTH IN THE U.S.A.

The report of the Committee on Public Health Organization in the United States,* issued as a publication of the White House Conference on Child Health and Protection, deals with its subject without regard to any age limitations. Child health, in the opinion of the committee, is an integral part of the general health movement, from which it cannot be separated, and its proper study entails a review of collateral health undertakings. The report thus presents a critical survey not only of child welfare activities, but of all organized public health services in the union, both official and non-official.

Official Services

The official health services of the United States comprise local, State, and Federal services. The local services are those of rural, county, and city areas. The committee find that, in general, the rural services are backward. The remedy is to make the county the health unit under a county health board, with a whole-time county medical officer, suitably qualified, adequately paid, and enjoying security of tenure. City services are studied by the committee in the case of more than 300 cities classed according to population. Of ninety-two large cities sixty-five were responsible for school hygiene and fifty-nine had charge of hospitals. Of ninety-one large cities sixty-six had full-time medical health officers, five had full-time lay health officers, and the remainder part-time medical health officers. Of sixty cities, fifty-three had venereal clinics in operation, forty-three carried on public health nursing, twenty-seven dealt with mental hygiene, and seven with dentistry. The activities of the various cities are set forth in a series of tables and charts. The word "cents" on pages 112 and 114 in relation to Chart III appears to be an error. Four of the public health indexes current in North America are applied to all the cities surveyed. These are: (1) expenditure for fundamental health services per head of population; (2) number of health department personnel per 100,000 of population; (3) number of public health nurses per 100,000 of population; and (4) ratio of notifications to deaths from tuberculosis. The results are displayed in graphical form and present an interesting picture. The principal needs of the city organizations, in the committee's opinion, are full-time service by well-trained personnel, whether medical or lay, and better co-ordination between agencies—official and non-official. It is suggested also that certain procedures now included in the work of city health departments might be gradually transferred to the general practitioner. As regards State services, in every State the Government is responsible for protecting and promoting the health of its citizens. It legislates to these ends, and meets or shares the cost of local services. State departments of health may make regulations. They may act in an advisory or supervisory capacity towards local authorities. They may discharge executive functions, often rendering direct service to the community by the maintenance of tuberculosis dispensaries, the conduct of venereal clinics, the provision of laboratory facilities, the distribution of biological products, and other means. The different States for obvious reasons vary greatly in their health equipment. The committee consider that all States should develop an effective central health organization composed of full-time trained personnel. As regards the Federal public health organization, it is authorized under the Welfare Clause of the Constitution, and includes among other sections the Bureau of the Census, the Children's Bureau, the Women's Bureau, and the United States Public Health Service. To these fall to be added, under another clause of the Constitution, the Bureau of Dairying, and Food and Drug Administration. The bulk of Federal health activity is conducted by the Public Health Service—whose reputation, with that of its director, Surgeon-General H. S. Cumming, is world-wide. The committee comment upon the anomaly that vital statistics and maternity and child welfare should be excluded from its official purview. They favour central co-ordination under the Public Health Service of all Federal activities specifically related to health. They approve of Federal grants in aid of local health, and think that they should be continued and increased.

Voluntary Organizations

The development of non-official health organizations in the United States, which began in 1886 with the Boston District Nursing Association, can only be described as phenomenal. Of these voluntary agencies some, discharging financial functions, give grants in aid of research or the training of health personnel or the direct provision of health services; while others, discharging executive functions, conduct research or carry on propaganda or operate schemes of medical care or treatment. The Rockefeller Foundation, the Commonwealth Fund, the Metropolitan Life Insurance Company, the National Tuberculosis Association, the National Association for Public Health Nursing, and the American Red Cross are prominent examples. The non-official bodies provide more than a quarter of the total annual outlay—including all Federal, State, and local activities—on public health in the United States. The committee have no shadow of doubt that non-official service in operating local schemes has been of inestimable value. They are desirous that there should be the most complete co-operation between the official and non-official sections. If the experience of England can give them any guidance they think they may perhaps look for the carrying on of many local nursing, clinic, and education services by non-official agencies on a contractual basis with appropriations from the public funds. In the actual relations of the two parties to the contract they suggest that four conditions should be given effect to: (1) that the medical officer of health should control all health activities in the area; (2) that each health service should be performed by the agency in the area best fitted to perform it; (3) that the non-official agencies in the area should constitute a health council with the medical officer of health as chairman; and (4) that the medical officer of health or his representative should be a member of all non-official boards.

Further chapters on the training of personnel, child health work, the relation of medicine and dentistry to public health, and the health aspects of food control complete this work, which is quite a thesaurus of experience and policy, well printed, attractively bound, and of moderate cost. The report is cordially recommended to the attention of administrators and public health workers, who will find it of value in many ways.

**Public Health Organization.* Report of the Committee on Public Health Organization. E. L. Bishop, M.D., Chairman. New York and London: D. Appleton and Co. (Pp. xv + 345. 15s. net.)

The officers of the Royal Society of Medicine have decided to continue the holding of special discussions, and the following subjects have been chosen for joint debate between two or more sections during the session 1932-3: (1) jaundice; (2) appendicitis; (3) treatment of the anaemias; (4) radiological treatment of gynaecological conditions; (5) mental and physical symptoms in presenile dementias; (6) causation and treatment of interstitial neuritis. The dates of these discussions will be settled later and announced on the weekly diary card.

MENTAL DEFICIENCY PICTORIALLY RECORDED

BY

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In view of the publication of the Mental Deficiency Committee's report,[1] it may be of some interest to practising members of the profession for me to illustrate photographically some clinical aspects of this problem.

These photographs were not specially taken for the purpose, but are the first of a series designed to show groups of defectives of like mental but different chronological ages, and of varied physical and sexual developments. They serve to show that cerebral growth does not necessarily keep pace with physical and sexual growth, a state of affairs in which some form of certifiable mental deficiency almost inevitably results. In the above illustrations the mental ratio has been determined by the Merrill-Palmer tests graded for normal infants and young children of from 3 to 6 years of age. It is employed in the present series for the sufficient reason that the mentality of the subjects was not equal even to the lower years of the well-known Binet tests. In both figures the patients are arranged from left to right in order of chronological age, and in each figure they are, irrespective of their ages in terms of years, of the same mental ratio. This, perhaps, is as good a way as any other to bring home to those not specially experienced in mental deficiency something of its problems, perplexities, and undoubted responsibilities.

In Figure 1 there is shown a group of females ranging in age from 5.8 years on the right to 36 years on the left, all having a Merrill-Palmer mental ratio of between 3 and 4 years.

No. 1, the woman on the extreme left, 36 years of age, has an estimated cubic capacity of brain of 986 c.cm., which is about that of a normal infant of 2 years, whilst her stature —from which that of the others may be gauged—is 1,330 mm. (4 ft. 4½ in.). She is utterly devoid of all educational or manual accomplishments, is dull, stupid, and of the "nagging" type.

No. 2 is an inoffensive imbecile of 28 years 9 months; speechless, and devoid even of utterance of the simplest sounds, except for the monosyllable "baa." She appears to understand simple instructions, and is harmless, quiet, affectionate, and well behaved.

No. 3 presents no features of interest, apart from the fact that she did not talk until 5 years of age—an almost certain clinical sign of future and serious cerebral deficiency.

No. 4 appears to be physically and sexually of normal development, and to be of sufficiently attractive appearance as to render it probable that her mental deficiency might escape the superficial observer. She is, however, almost the worst of the series. Chronologically she is 20 years 6 months old, but her mental age is only 3 years 4 months. She is one of three children, one other of whom is defective. She is stubborn, hasty, and at times dangerously violent. She is unable to dress or wash herself without assistance, cannot re-

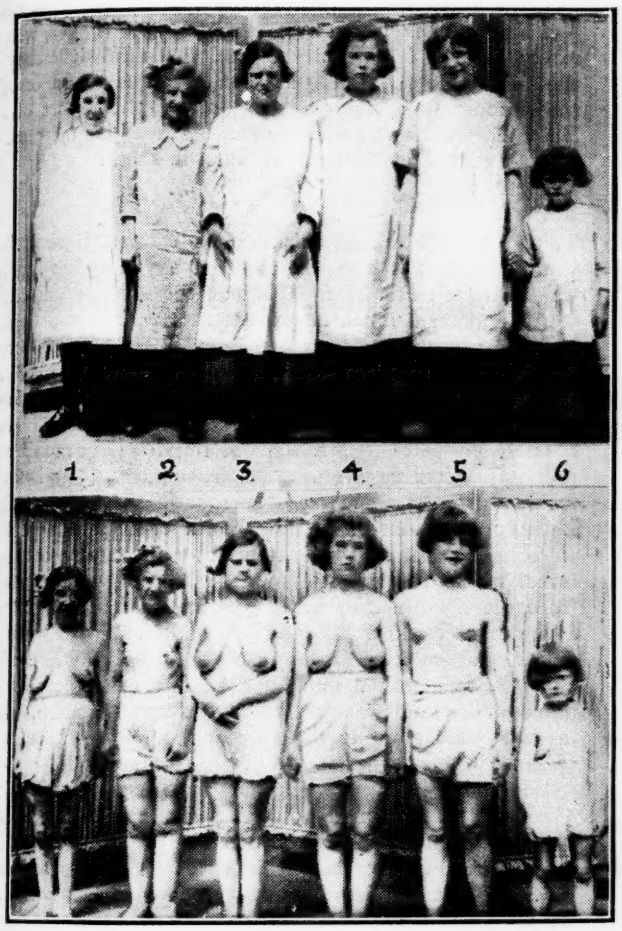

FIG. 1

FIG. 2

FIG. 1.—A group of female mental defectives of the same mental age, but of very different chronological ages. Mental ages between 3 and 4 years. Chronological ages from left to right: 36 years, 28 years 9 months, 26 years 10 months, 20 years 6 months, 14 years 8 months, 5 years 8 months.

FIG. 2.—A group of female mental defectives of the same mental age, but of very different chronological ages. Mental ages between 4 and 5 years. Chronological ages from left to right: 27 years 6 months, 16 years 11 months, 13 years 1 month, 8 years.

[1] *British Medical Journal Supplement*, June 25th, 1932.

member what she had for breakfast, has no educational accomplishments whatsoever, and is perfectly useless for even the simplest manual tasks. The case is thus of more than ordinary interest, as it so graphically illustrates the inequality between cerebral, somatic, and sexual development.

No. 5 is also a deceptive case. Notwithstanding her apparently happy and contented smile, she is an imbecile with mental age of 3 years 8 months, and of exceptionally vicious disposition. Quarrelsome, mischievous, bad tempered, she is addicted to the use of vile and obscene language, kicks and bites other children, and altogether is a dangerous and violent case.

No. 6—the child on the right—is, as regards her head size, on an exact equality with the middle-aged woman on the left. Her mother is mentally defective, and the child herself could not speak at all until 4 years of age, and her speech is still almost unintelligible.

In Fig. 2 are shown a group of four defectives, again of widely different chronological ages, but with a mental age one year older than those of Group I—that is, of between 4 and 5 years.

No. 1 on the left is an epileptic imbecile of 27 years 6 months, with a Merrill-Palmer mental ratio of 4 years. She is very destructive, has no educational or manual attainments whatsoever, is a hoarder of rubbish, and exceedingly troublesome just prior to the onset of her fits.

No. 2, a girl of 16 years 11 months, is above the average height for her sex and age, but is mentally much retarded, having only attained the mental level of a normal child of 4 years 11 months. Her photograph shows her to be well developed physically and sexually. She is quiet, simple, hardly ever speaks, and has no idea of either colour or form.

No. 3, aged 13 years 1 month, is unable to carry on any conversation, and is a perfectly hopeless educational case. She is exceedingly destructive, tears up her clothes, and destroys the bed linen. She is restless, stubborn, throws things about, and her so-called speech is best described as "jabbering." She cannot pick out the letters of the alphabet, cannot tell the time, and is subject to violent epileptiform fits of temper.

No. 4, a child aged 8 years, is one of five children, one of whom is also a certified mental defective. Her speech is imperfect.

Whilst this brief note, with its illustrations, conveys nothing new to the expert—for unhappily every large institution can show many similar and even worse examples—it may not be without interest to the practitioner, who so rarely has the opportunity of seeing mental deficiency in the bulk. He thus not unreasonably fails to understand the seriousness of the position, for, as the report of the Mental Deficiency Committee shows, there are far more of these cases outside institutions than in them.

Nova et Vetera

ST. THOMAS'S HOSPITAL

Summa ars est celare artem is well exemplified by Mr. F. G. Parsons in the *History of St. Thomas's Hospital*, of which he has just published the first volume.[1] Mr. Parsons has gone to original sources for his facts, and has studied the Chartulary of St. Thomas's Hospital, John Howes's manuscript, and the court minutes of the hospital as they occur after the Reformation. He has also consulted the Patent Rolls, the Close Rolls, and the Papal Registers. All this has involved an immense amount of work, but it is carefully hidden, and the result is admirable, for Mr. Parsons has produced a book which is most readable. It is clearly expressed, and is not devoid of humour. He has dedicated it to H.R.H. the Duke of Connaught, who for fifty years has held the honourable position of president of the hospital.

The early history of St. Thomas's Hospital has hitherto been most obscure. Pretty legends grew up about its foundation, like that which is told of the piety of a Mary Overie, whose miserly father was said to have made a fortune by a ferry across the Thames. Mr. Parsons shows that except when London Bridge was broken down there could have been no use for such a ferry, because from Roman times there was always a bridge between London and Southwark. The truth of the matter seems to be that the hospital grew gradually, and was never specifically founded. There was therefore no founder, like Rahere in the case of St. Bartholomew's Hospital, and consequently no charter. Mr. Parsons points out that there is good reason for thinking that the hospital began as a specialized part of the infirmarium of St. Mary the Virgin, an Augustinian priory established at Southwark by Bishop Giffard in 1106. The infirmarium was placed under the protection of St. Thomas, just as the infirmarium at Westminster was under St. Katherine, although the Abbey was dedicated to St. Peter. The infirmary was separated from the Southwark priory by Bishop Peter de Rupibus in 1215, and retained its name of St. Thomas's until the canonization of Thomas Becket sixty years later. It is true, therefore, to say that the hospital was dedicated first to St. Thomas the Apostle and afterwards and for a much longer time to St. Thomas Becket. For many years it maintained forty beds, and was served by four Augustinian canons and three sisters of the Order of St. Augustine. It is a little difficult to know where the patients came from, as Southwark was very sparsely populated. Mr. Parsons implies that many were probably suffering from ague, rheumatism, and fevers incidental to the marshy surroundings and appalling sanitary conditions of the neighbourhood; some, no doubt, were in need of surgical attention, and at any rate late in its mediaeval history pregnant harlots were admitted from the neighbouring stews. Sometimes it was frankly a workhouse, and occasionally it was filled with wounded and invalid soldiers. In any case the hospital was needed, and it soon acquired land, houses, and other possessions. Some of the land was at Beddington and Mitcham, where in 1348 John Arderne the surgeon bought eighteen acres of land in his own name and that of his wife, only to sell it again in 1351 when he went to live at Newark. The hospital also held land at Wakering in Essex, and St. Bartholomew's Hospital from very early times had an intimate connexion with Little Wakering, and still uses the armorial bearings of John Wakering, who was master of the hospital from 1423 until 1463. It would be interesting to determine whether the two hospitals had any bond in common with the great surgeon or with this part of Essex.

Most of the hospitals in the Middle Ages were planned with a large hall in which the patients lay. The hall contained an altar in sight of all, at which the mass was celebrated daily. Mr. Parsons thinks that this plan was not followed at St. Thomas's Hospital, and that the monastic arrangement was retained of cloistered buildings around garths. Be this as it may, the hospital soon got a church, with an altar of the Blessed Virgin Mary in the choir, two bells in a belfry, and a burial ground, in which others than deceased patients and staff might be buried if they paid additional fees. In the sixteenth century persons not directly connected with the hospital service lived within its precincts, and of these the most notable were the two Nicholsons, printers of Tyndale's translation of the Bible in 1537, and who were not only printers,

[1] *The History of St. Thomas's Hospital.* Vol. i, *From the Earliest Times until A.D. 1600.* By F. G. Parsons, D.Sc., F.R.C.S., F.S.A. London: Methuen and Co., Ltd. 1932. Pp. xii + 256; 8 illustrations 10s. 6d. net.)

but were also artists in stained glass. They painted some, at any rate, of the stained glass windows which still adorn King's College Chapel at Cambridge.

Mr. Parsons carries his history to the later years of Queen Elizabeth's reign. There is more to come, and it must of necessity deal with the rise and development of the medical school and of the nursing profession. The volume is illustrated with some remarkably well-produced portraits of King Edward VI, Bishop Ridley, Sir William Hewett, and Sir Edward Osborne, to each of whom the hospital owes much.

France

[From our Correspondent in Paris]

Reform of the Medical Curriculum

It is agreed that medical curricula in France are capable of improvement; but how, when, and where? Even such an undisputed fact as the present overcrowding in the medical schools and hospitals evokes contradictory reactions. Those who would like to see medicine proletarianized view the present state of affairs with equanimity. It is generally agreed that an additional year should be added to the curriculum; but how should this be spent? At the very outset there is the question whether Greek and Latin should serve as hurdles in the steeplechase. They would help to eliminate many would-be entrants, and those who cleared the obstacle would, it is assumed, have acquired a comparatively philosophical outlook on life and be able to understand and even coin medical terms in these languages. Concrete proposals have been put forward, the object of which is to enable the would-be specialist to diverge from the would-be practitioner. Medical education in France is, in short, in the melting-pot, and in the near future we may expect to find a more or less standardized curriculum adopted by all the teaching bodies. From the beginning of next year the system of the written examination will be introduced, with the examiner ignorant of the identity of the examinee. This change is a reflection of the uneasy feeling that in the past the personal equation has weighed too heavily in *viva voce* examinations.

Early Rising after Operations

Professor André Chalier of Lyons has recently published in *Le Siècle Médical* some impressive statistics in support of getting the patient out of bed as soon after an operation as possible. Early post-operative rising is, according to his definition, limited to the first five days, after which it is no longer early. After an abdominal operation early rising begins with the second day, and the majority of Professor Chalier's patients begin to get up forty-eight hours after operation. The conditions to be fulfilled are: asepsis, as perfect an arrest of haemorrhage as possible, and an impeccable reconstitution of the divided structures. Fever is not necessarily a contraindication, provided there is no fear of infection, and even after an operation for suppurative salpingitis or gangrenous appendicitis the patient rises early, provided the focus of infection has been eliminated. Early post-operative rising entails doubling the clinical supervision. The practice is not enforced wholesale, and dyspnoeic patients with weak hearts are not hurried out of bed. But acute catarrhal tracheo-bronchitis, following a general anaesthetic, is not a contraindication, provided precautions are taken against the patient's getting chilled. The decision for or against early rising is, of course, a matter of common sense and clinical acumen. It is worth noting that Professor Chalier's patients belonged to his private clientele, not to a public hospital. Broadly speaking, he claims that this system has reduced by half the post-operative period of indisposition and convalescence. He discusses one by one the post-operative mishaps, such as phlebitis and fatal embolism, which might be laid at the door of early post-operative rising, and he dismisses them all as unwarrantable bogies. During four years he has performed 740 abdominal operations on patients, all of whom began to get up within five days of the operation.

New Site for the Faculty of Medicine

The Faculty of Medicine of Paris is shortly to change its headquarters. The Rockefeller Foundation is contributing generously to the move necessitated by the cramped conditions of the old headquarters. The new site borders on the southern line of the old Paris fortifications; this means that the new headquarters will be comparatively far from the centre of Paris, and the spaciousness achieved will be at the cost of much time lost in travelling. It was not without a pang that those concerned in the move abandoned the prospect of acquiring a site much nearer to the heart of things—an extensive area on the left bank of the Seine just above Notre Dame, devoted to the offices and cellars of wine merchants. Here the Faculty of Medicine would have been near the Medico-Legal Institute, the Morgue of old Paris fame, the publishers of medical books, the makers of medical instruments, and the landladies of medical students. But it was not to be; possession was nine points of the law, and the none too beautiful wine merchants' stalls are to remain, for the present.

Recent Congresses and Conferences

France has had its fill of international medical meetings this summer and autumn. First, the International Congress on Asthma, which yielded thirty odd papers in French and other languages: the records of this congress ought to be an up-to-date symposium of our ignorance of this disease. Secondly, there was the International Conference on Mental Hygiene, at which some thirty countries were represented. One of the driving forces of this conference was Mr. Clifford Beers, the American whose tragic experiences in various asylums formed the basis of his book, *A Mind That Found Itself*. Mental hygiene is very much to the fore in France at the present time—stimulated to some extent by the assassination of President Doumer. Dr. Toulouse, who directs the Henri Rousselle Clinic, is taking a leading part in psychiatric reforms. Then there was the Congress at Vichy on "La Lithiase Biliaire," attended by some 1,400 members; and lastly, at Marseilles, the first Congress on Hygiene in the Mediterranean.

England and Wales

MARGATE MEDICAL BATHS

Margate is energetically pursuing its claim to be regarded as an all-the-year-round watering place, and not merely a resort for summer trippers. On October 22nd the borough invited a large number of medical and other visitors to attend the opening ceremony of an establishment for medical baths and other physical treatments, of which the corporation has just taken possession. The building, which is in Cliftonville Avenue, has hitherto formed an annexe of one of the large hotels, but the opportunity arose for the corporation to secure the property, and thus an establishment, not of large dimensions, but equipped in an up-to-date fashion, and extremely comfortable, not to say luxurious, with its Italian marbles, has been added to the amenities of the town. About fifty different balneological and electrical treatments are given by a trained staff, acting according to the patients' medical advisers, for whom consulting rooms have also been provided. The

list of treatments includes Russian and Turkish baths, sulphur, brine, and pine baths, needle spray, Vichy, Plombières, and Tivoli douches, the Nauheim treatment, and many electrical treatments. One of the most modern installations is a foam bath for rheumatic subjects. Among those who attended the complimentary luncheon before the opening ceremony were Sir StClair Thomson, Dr. R. Fortescue Fox, Dr. A. Greenwood (M.O.H. for Kent), Dr. G. L. Brocklehurst (M.O.H., Margate), Dr. W. J. Bannister (M.O.H., Ramsgate), and about forty other medical men from the Isle of Thanet. The Mayor of Margate, Councillor P. B. Osborne, spoke of the invigorating air, the high sunshine and low rainfall record, and the four miles of promenade of which Margate is able to boast, and expressed the hope that the British public might be led to "breathe British and bathe British." He claimed that with its up-to-date and scientifically equipped and managed corporation baths, Margate could offer the invalid all those advantages which so many believed were only to be found in Continental spas. He hoped soon to see a medical advisory committee working in close liaison with the Public Health Committee of the corporation.

Medical Tributes to Margate

Sir StClair Thomson described Margate as one of England's oldest and most deserving health resorts, and one which was recognized by the profession as possessing a very able body of medical men. He had noticed in the entrance hall of the Sea-bathing Infirmary a tablet in memory of the great Lettsom, president of the Medical Society of London, by whom the infirmary was founded in 1791. Lettsom thereby established the reputation of Margate as a bathing resort, and it became a pioneer in the treatment of surgical tuberculosis by climatic methods. The air of Margate was tonic, bracing, and stimulating. It had unrivalled sands and cliff walks, as well as many other attractions. The natural qualities of Margate were of special value for feeble or ill-developed children, for cases of surgical tuberculosis in all its forms, for convalescence after operation or illness, for cases of catarrh of the air passages, and for the increasing number of cases of neurasthenia. The sea bathing was perhaps the finest and safest in Europe. The opening of the new bathing establishment would have the warm approval of the profession. It had the immense advantage of being in the hands of the corporation, which was a protection to the public.

Dr. Fortescue Fox congratulated Margate on being the historic centre in England for the treatment of tuberculosis in children. The cure at the seaside of the little victims of tuberculosis was now an established fact. The seaside, indeed, was the natural home of all physical remedies ; nowhere else did they exist in greater variety and perfection. Margate had also rendered an important service to public health as a convalescent centre for a variety of far too common ailments and more serious disorders. The south-east coast of England formed a special climatic region (to use the terminology of the British Health Resorts Association) which had a powerful stimulating influence on young and middle-aged persons. The sluggish functions of the body responded to the cunningly combined influence of Nature, the failing resistance to disease was strengthened, so that the organisms of catarrh and other chronic infections were thrown off, and the chronic chilliness from which many people suffered as the first stage of serious disease gave place to an increased warmth of the body by re-education of the natural reaction to cold. It was not yet realized how essential a part natural physical remedies played in all forms of convalescence. Every well-ordered centre of convalescence, however, with all its natural advantages, had to make good the deficiency of a northern climate by the use of artificial heat. The systematic use of artificial heat had to be provided to safeguard delicate persons against the dangers of chill, and the best results were often obtained by alternating stimuli. Public bodies which were enterprising enough to install these admirable methods of preserving health deserved every encouragement and support from the profession. The new baths would offer an opportunity for demonstration, with measurements and records, of the numerous beneficial modifications in the body which such treatments produced, and Margate would take a hand in bringing home to the profession and to the public the efficacy of serious physical treatment, employed with the same skill and accuracy as drugs or surgical measures. Alderman F. L. Pettman, chairman of the Public Health Committee, mentioned that two medical mayors in the earlier days had played a noteworthy part in the development of Margate. The company then adjourned to the baths themselves, which were formally opened by Sir StClair Thomson, to whom a vote of thanks was accorded on the proposition of the mayor, seconded by Dr. Brocklehurst, under whose supervision the establishment will be run.

Landmarks in Preventive Medicine

On October 20th Sir Humphry Rolleston gave a Chadwick Public Lecture at the Royal United Service Institution, entitled "The pioneers and progress of preventive medicine." He began by recalling Disraeli's paraphrase *Sanitas sanitatum, omnia sanitas*, which prophetically represented the ideal of medicine—namely, the prevention of disease. As the causes of disease were numerous, so the methods employed for its prevention must cover a wide field, such as epidemiology, statistics (out of which William Farr "made literature"), bacteriology due to the genius of Louis Pasteur and Robert Koch, sanitary science, applied physiology and psychology, State supervision, education of "everyman," and the relief of poverty. The lecturer then gave a rapid sketch of the history of preventive medicine from the dawn of medicine up to modern times. After the fall of Rome came the Dark Ages, when hygiene was like to become a lost art ; but the pestilence of the Middle Ages led to the institution of quarantine. In the eighteenth century the State called on Richard Mead to advise measures to protect Britain from invasion by the plague, and later a number of important advances in preventive medicine were made, especially by Sir John Pringle, "the founder of military medicine," whose mantle was worn in the following century by A. E. Parkes, and by James Lind, "the father of nautical medicine and hygiene." Isolation of patients with infective fevers was initiated by John Haygarth and John Ferriar, and many hospitals were opened. The industrial revolution led to the overcrowding of towns and the appalling sanitary conditions in factories, against which Thomas Percival protested, as did Stephen Hales and John Howard about the state of the prisons. Johann Peter Frank laid the foundations on broad lines of public hygiene, and the century closed with Edward Jenner's discovery of vaccination against small-pox, which nearly a century later was followed by Pasteur's protective vaccination by attenuated viruses and Almroth Wright's vaccines. In the first half of the nineteenth century Great Britain led the way in the active State intervention in the cause of public health. This was largely due to Edwin Chadwick, a pupil of Jeremy Bentham ; he was not a medical man, but was followed by Thomas Southwood Smith and John Simon, and much helped by Lord Shaftesbury. The water-borne origin of cholera was proved by John Snow in 1855, and of enteric fever by William Budd in 1873. After the middle of the century bacteriology led to Lister's epoch-making antiseptic method, which not only made surgery

safe for mankind, but provided a scientific basis for the prevention of infectious diseases; thus the prophylactic injection of persons shown by the Schick and Dick tests to be susceptible to diphtheria and scarlet fever had recently been established. Sir Humphry Rolleston next briefly outlined the history of the campaigns against puerperal infection and the rise and progress of industrial medicine from the time of Ramazzini early in the eighteenth century. Tropical medicine, studied by Pringle and Lind, was transformed, after the advent of protozoology and bacteriology, by Patrick Manson, A. Laveran, Theobald Smith, Ronald Ross, Walter Reed, David Bruce, R. Blanchard, L. Rogers, and W. C. Gorgas. The existence and importance in preventive medicine of insect and animal carriers of disease became recognized. In conclusion, the lecturer spoke of the recognition of deficiency diseases (so largely due to the work of Hopkins) of goitre prevention, and of the activities of the International Health Board of the Rockefeller Foundation.

Chelsea Clinical Society

The Chelsea Clinical Society held its annual dinner on October 18th at Claridge's Hotel, with Mr. Ivor Back, the president, in the chair. In proposing the toast of "The Society" Mr. Sidney Dark gave an amusing account of how he had been invited to dine with men whose reading, he supposed, was chiefly confined to the *B.M.J.* His polite criticisms of the society, the president, and the profession were accompanied by equally polite compliments. Mr. Back, replying to the toast, denied all that had been said by Mr. Dark about the profession, the society, and himself. The Chelsea Clinical Society, he said, now numbered 200, and had never been so flourishing. The programme of the society for the ensuing year included discussions on contraception, non-specific protein therapy, and the surgery of the autonomic nervous system. The toast of "The Guests" was proposed in a humorous speech by Dr. H. Rivers Pollock, and Mr. Ralph Strauss replied. He was succeeded by Mr. George Belcher, who entertained the company with stories of his life among the charladies. Mr. Warren Low, who also replied for the guests, complimented the society on its career, saying that the intimacy established between members of the profession in the smaller societies was of great benefit to those concerned. A very pleasant evening was brought to a close by a characteristic speech from Sir Henry Curtis-Bennett.

Dental Training at Birmingham

At the annual distribution of prizes to students of the Birmingham University Dental School on October 13th, the chairman of the surgical committee, Mr. Malcolm Knott, reviewed the many changes that had been made during the preceding year. Accommodation for teaching dental mechanics had had to be increased, while the close interdependence of the school and hospital had secured for students a great range of clinical experience, together with opportunities for developing knowledge, skill, and tact in handling patients under expert supervision. The training afforded in operations under anaesthetics and in the use of anaesthetics—principally nitrous oxide—was unequalled in any other school or hospital in the country. The standard was being maintained with the help of two medically qualified anaesthetists, and here again patients as well as students were being carefully safeguarded. The Dental Board of the United Kingdom had made a grant of about £500 towards new equipment, conditionally on the school finding the same amount of money; students and patients had alike benefited by the acquisition thus of new chairs and *x*-ray apparatus. Mr. Knott said that the future of dentistry was now most promising. There was plenty of room in the profession for highly educated men and women, and the university amenities at Birmingham rendered the process of training particularly pleasant as well as fruitful. Sir Thomas Horder, the guest of honour, emphasized the importance of courtesy, courage, and concentration in dealing with patients. Registration had conferred distinction on the practitioners of dental surgery and safety on the more intelligent section of the general public. His own experience had taught him that while books, demonstrations, and theories had their place in the acquisition of clinical ability, it was the patient who really did the teaching. The practice of dentistry brought them into contact with their fellow men, and was a very human activity, promising both success and happiness.

Scotland

Chair of Surgery at Aberdeen

Professor J. R. Learmonth, Ch.M., F.R.C.S.Ed., who was recently elected to succeed Emeritus Professor Sir John Marnoch in the chair of surgery at Aberdeen University, delivered his inaugural lecture on October 17th. Introducing Professor Learmonth, Principal Sir George Adam Smith said that Sir John Marnoch had maintained and enhanced the high traditions of the chair of surgery at Aberdeen for twenty-three years. They welcomed the new professor gladly as one who had had an honourable career as a student, graduate, and teacher in the University and hospitals of Glasgow; this ensured his familiarity with the methods and needs of a Scottish medical school. Professor Learmonth had acted for some years as a surgeon to the Mayo Clinic in the United States and as an associate professor in the University of Minnesota, and he came to them with recommendations from high authorities as a great clinician and operating surgeon, and as a good teacher with a brilliant record of research. They might have confidence that the efficiency and reputation of the chair, both for teaching and for research, would be maintained. Professor Learmonth, taking as his subject "The golden age of the craft of surgery," said that for a century or more the craft of surgery had had a sure foundation in the finality of regional anatomy. He did not, however, wish to create the impression that in the present golden age, when surgery seemed to be in its heyday, a surgeon should be complacent. Many problems cried for solution. They were at a professional cross-road in this country in regard to specialization, and he urged that planes of cleavage between specialties should be vertical and not, as there was some tendency to make then, horizontal; by this he meant that for purposes of specialization the body should be divided into a series of functional units rather than into a series of systems. Under the scheme he proposed, the surgeon would be trained to treat the patient rather than some particular pathological condition, and he would be better equipped to contribute something to the progress of human physiology. Professor Learmonth said they must make it their business to see that the dividing walls between surgical specialties were low, so that every specialist could have an unobstructed view of the work of other surgeons; they must also arrange that the paths of different specialties converged at frequent intervals, so that all surgical lore might become common property.

Mental Disorder in Scotland

The report of the General Board of Control for Scotland on lunatic asylums and on the protection and control of mental defectives, dealing with the year 1932, states that, exclusive of those insane persons maintained at home by their natural guardians, there were, on January 1st,

19,472 insane persons of whom the Board had official knowledge. Of these, 2,907 were private patients, 16,499 were supported from municipal rates, and 66 were in the Criminal Lunatic Department of Perth Prison at the expense of the State. The total number on January 1st, 1931, was 19,241, so that there had been an increase of 231 during the year. There was a certain amount of overcrowding in district asylums owing to the increase in the number of patients; and this could be remedied only by the provision of more institutional accommodation, or by the discharge of patients who would no longer benefit by expensive curative treatment in an asylum. A noteworthy feature has been the steady decline in recent years in the number of patients boarded out from asylums. This suggests either that fewer patients are now suitable for boarding out, or that there is greater difficulty in obtaining suitable guardians. The Board's Deputy Commissioners, however, had reported that there was no real lack of possible guardians throughout the country, but that they were not being supplied with patients, and it is suggested that on financial as well as other grounds local authorities should not ignore the advantages to be gained by the fuller use of the boarding out system, a system which has been a great success in Scotland in past years. The large cities have organized such a system, and it is desirable that there should be similar arrangements in all the large burghs and in counties, now that the duties of the parish councils have been transferred to town and county councils. Certain areas might usefully combine for this purpose, and much economy in the treatment of insane persons might be effected. With regard to the prevention of mental disease, it is pointed out that 951 patients (450 male and 501 female) were discharged recovered from Scottish asylums during the year ending December 31st, 1931. Of these, 57, or 6 per cent., were under 20, and 185, or 19.4 per cent., were between 20 and 30. Of those recovered, 77 per cent. were discharged within a year after admission, and a further 12.6 per cent. before the expiration of a second year. The report claims that the interrelationship between mental and physical health and disease is being more and more recognized. Mental conditions which require treatment in asylums begin mainly during the strain of middle life and with the approach of old age, and there is no doubt that in many cases insanity is preventable by medical treatment given at the right time. The returns furnished by local authorities for expenditure on pauper lunatics show that a total sum of £993,041 was paid, of which £863,903 was for maintenance in royal and district asylums, £47,494 for maintenance in private dwellings, and £19,841 for certification, transport, and other expenses. Of this expenditure £57,295 was recovered from relatives and friends. The average charges for pauper lunatics have been as follows: in royal asylums 21s. per week; in district asylums 19s. 2d. per week; in lunatic asylums of poorhouses 12s. 5d. per week; and in private dwellings 12s. 11d. per week. In addition to this expenditure, the maintenance and provision of accommodation for certified aided mentally defective persons who have been under care during the year in certified institutions or under guardianship amounted to £181,596, of which £144,636 was paid in respect of persons in certified institutions and £32,679 in respect of patients in private dwellings.

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Arising out of alleged complaints by a member of the Dail concerning the difficulty experienced by poor persons in being admitted for treatment to some of the voluntary hospitals in Cork and Dublin, the Parliamentary Secretary to the Minister for Local Government and Public Health, Dr. C. Ward, stated that the position was generally unsatisfactory so far as accommodation and specialized treatment for the very poor were concerned. It had been freely alleged that these difficulties had not much lessened as a result of the large allocations from sweepstakes. These were made on the understanding that 25 per cent. of the money would be devoted to the poor, but there appeared to be no statutory power to see that the sum was made available for that purpose. It also appeared that advantage was not being taken of the opportunity afforded by the sweepstakes to secure the best system. A position had been reached in which a number of hospitals were in competition. His Department had been giving this matter thought, and it was intended to introduce a Government measure—the Bill was being drafted—calculated to secure better results from the money allocated. In these circumstances he asked the Members to postpone consideration of the present private Bill until they heard the contents of the new measure. Mr. Fitzgerald-Kenny, Minister for Justice in the late Government, said that the moneys could have been much better allocated if they had visualized the enormous proportions the sweepstakes would attain. Steps should be taken towards the amalgamation of hospitals. In Vienna, a city much larger than Dublin, there was only one hospital, and this made for greater efficiency and economy. The poorer middle classes were as much in need of moderately charged treatment as any other class, and he believed that when the hospitals were rich a real effort would be made to help not merely the poor, but the struggling middle classes. Sir William Taylor, vice-chairman of the Irish Hospitals Committee, in a statement to the Press, is reported to have said that he did not like the suggestion to hold up the money already obtained from the sweepstakes. Where hospitals had embarked on additional expenditure for new buildings or reconstruction the retention of the money would mean overdrafts and heavy rate of interest. It would prevent hospitals from undertaking any fresh expenditure, which in turn might prevent further employment.

Public Health in Galway

Dr. B. O'Beirne, county medical officer of health, in his annual report to the Galway County Council, stated that much progress had been made in the organization of the public health scheme. In 1931 there were notified 553 cases of infectious diseases, including 200 of measles and 171 of diphtheria. During the year a campaign of immunization against diphtheria was started, the number immunized being 2,139. So far as the health of the community was concerned, housing played a very important part. Galway was rapidly improving its housing accommodation, especially in the Galway urban area. There were a large number of houses still required in the Connemara district to replace the existing insanitary ones, and Dr. O'Beirne was glad to be in a position to say that as a result of the Gaeltacht housing scheme much good work has been done in this direction. In a separate report dealing with medical inspection of school children, which was started in Galway in January, 1931, Dr. O'Beirne writes that there are 32,174 children on the register. The total number of children examined during the year was 8,087. At first glance, he writes, it would appear that the defects are very numerous, but on analysis it may be seen that most of these are remediable. The percentage of carious teeth was in the region of 50. With the extension of the scheme to the rural areas a marked decrease was noticeable. The percentage under the heading "uncleanliness" was 29.8. With the exception of the convent schools the sanitation left much to be desired, though the majority of the schools were kept as well as possible. In most of the schools inspected the out-offices were of the dry type, and as there was no proper provision made for the sewage discharge, some lavatories were nothing more than open cesspools. Dr. O'Beirne is of opinion that it would be possible to devise a better system of sanitation, and suggests that a conference might be arranged between the Local Government Department and Board of Works officials and county medical officers of health. Hygiene is taught in very few of the schools, and it would be of immense benefit to the community if children were lectured, even once a month, on the elements of this subject. Attention should also be paid to physical exercises and to the introduction of the dual type of school desk.

County Longford New Hospital

The Longford Board of Health has decided to undertake the building of a new county hospital at a cost of £60,000 on the understanding that a grant from the Sweepstakes Fund, amounting to nine-tenths of the cost, will be available. It is also proposed to improve the County Home buildings (used for the aged and infirm and for chronic invalids), and to transfer the fever hospital to the present County Hospital buildings on the other side of the town. For these improvements the Department has agreed to make a grant of three-fourths of the cost. Mr. Lysaght, Local Government Department inspector, in his report, states that accommodation for sixty-five beds is required in the County Hospital, which at present can only hold 42 beds; the hospital is altogether unsuitable. The amount to come from the rates will be £6,000, which can be raised by loan.

CORRESPONDENCE

The Hastings Window in Worcester Cathedral

Sir,—Those who joined in the pious pilgrimage to Worcester at the beginning of the Centenary Meeting must have been immensely impressed with the magnificence of the window which Lord Dawson unveiled to the honour and memory of the founder of our Association. The fineness of the design of the window, the superb colouring of the glass, and the amazing brilliance of the lighting were subjects of general comment by the great company present at the unveiling. Also, it was recognized by all what a perfect position within the Cathedral had been assigned to the Association by the Cathedral authorities for the erection of this votive offering.

There is one remaining drawback to this worthy celebration of Sir Charles Hastings. The window is not paid for. Every member of the Council, and, I believe, every member of the Representative Body, has subscribed one guinea each; many other members of the Association—officers of the Divisions and Branches and of scientific sections, and general members of the Association—have subscribed; but I am saddled with a deficit of £110 odd. The sentimental value of such a memorial is great. I feel sure that so long as Worcester Cathedral stands the Hastings window will be one of the glories of that Cathedral and a constant reminder of the admiration in

19,472 insane persons of whom the Board had official knowledge. Of these, 2,907 were private patients, 16,499 were supported from municipal rates, and 66 were in the Criminal Lunatic Department of Perth Prison at the expense of the State. The total number on January 1st, 1931, was 19,241, so that there had been an increase of 231 during the year. There was a certain amount of overcrowding in district asylums owing to the increase in the number of patients; and this could be remedied only by the provision of more institutional accommodation, or by the discharge of patients who would no longer benefit by expensive curative treatment in an asylum. A noteworthy feature has been the steady decline in recent years in the number of patients boarded out from asylums. This suggests either that fewer patients are now suitable for boarding out, or that there is greater difficulty in obtaining suitable guardians. The Board's Deputy Commissioners, however, had reported that there was no real lack of possible guardians throughout the country, but that they were not being supplied with patients, and it is suggested that on financial as well as other grounds local authorities should not ignore the advantages to be gained by the fuller use of the boarding out system, a system which has been a great success in Scotland in past years. The large cities have organized such a system, and it is desirable that there should be similar arrangements in all the large burghs and in counties, now that the duties of the parish councils have been transferred to town and county councils. Certain areas might usefully combine for this purpose, and much economy in the treatment of insane persons might be effected. With regard to the prevention of mental disease, it is pointed out that 951 patients (450 male and 501 female) were discharged recovered from Scottish asylums during the year ending December 31st, 1931. Of these, 57, or 6 per cent., were under 20, and 185, or 19.4 per cent., were between 20 and 30. Of those recovered, 77 per cent. were discharged within a year after admission, and a further 12.6 per cent. before the expiration of a second year. The report claims that the interrelationship between mental and physical health and disease is being more and more recognized. Mental conditions which require treatment in asylums begin mainly during the strain of middle life and with the approach of old age, and there is no doubt that in many cases insanity is preventable by medical treatment given at the right time. The returns furnished by local authorities for expenditure on pauper lunatics show that a total sum of £993,041 was paid, of which £863,903 was for maintenance in royal and district asylums, £47,494 for maintenance in private dwellings, and £19,841 for certification, transport, and other expenses. Of this expenditure £57,295 was recovered from relatives and friends. The average charges for pauper lunatics have been as follows: in royal asylums 21s. per week; in district asylums 19s. 2d. per week; in lunatic asylums of poorhouses 12s. 5d. per week; and in private dwellings 12s. 11d. per week. In addition to this expenditure, the maintenance and provision of accommodation for certified aided mentally defective persons who have been under care during the year in certified institutions or under guardianship amounted to £181,596, of which £144,636 was paid in respect of persons in certified institutions and £32,679 in respect of patients in private dwellings.

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Arising out of alleged complaints by a member of the Dail concerning the difficulty experienced by poor persons in being admitted for treatment to some of the voluntary hospitals in Cork and Dublin, the Parliamentary Secretary to the Minister for Local Government and Public Health, Dr. C. Ward, stated that the position was generally unsatisfactory so far as accommodation and specialized treatment for the very poor were concerned. It had been freely alleged that these difficulties had not much lessened as a result of the large allocations from sweepstakes. These were made on the understanding that 25 per cent. of the money would be devoted to the poor, but there appeared to be no statutory power to see that the sum was made available for that purpose. It also appeared that advantage was not being taken of the opportunity afforded by the sweepstakes to secure the best system. A position had been reached in which a number of hospitals were in competition. His Department had been giving this matter thought, and it was intended to introduce a Government measure—the Bill was being drafted—calculated to secure better results from the money allocated. In these circumstances he asked the Members to postpone consideration of the present private Bill until they heard the contents of the new measure. Mr. Fitzgerald-Kenny, Minister for Justice in the late Government, said that the moneys could have been much better allocated if they had visualized the enormous proportions the sweepstakes would attain. Steps should be taken towards the amalgamation of hospitals. In Vienna, a city much larger than Dublin, there was only one hospital, and this made for greater efficiency and economy. The poorer middle classes were as much in need of moderately charged treatment as any other class, and he believed that when the hospitals were rich a real effort would be made to help not merely the poor, but the struggling middle classes. Sir William Taylor, vice-chairman of the Irish Hospitals Committee, in a statement to the Press, is reported to have said that he did not like the suggestion to hold up the money already obtained from the sweepstakes. Where hospitals had embarked on additional expenditure for new buildings or reconstruction the retention of the money would mean overdrafts and heavy rate of interest. It would prevent hospitals from undertaking any fresh expenditure, which in turn might prevent further employment.

Public Health in Galway

Dr. B. O'Beirne, county medical officer of health, in his annual report to the Galway County Council, stated that much progress had been made in the organization of the public health scheme. In 1931 there were notified 553 cases of infectious diseases, including 200 of measles and 171 of diphtheria. During the year a campaign of immunization against diphtheria was started, the number immunized being 2,139. So far as the health of the community was concerned, housing played a very important part. Galway was rapidly improving its housing accommodation, especially in the Galway urban area. There were a large number of houses still required in the Connemara district to replace the existing insanitary ones, and Dr. O'Beirne was glad to be in a position to say that as a result of the Gaeltacht housing scheme much good work has been done in this direction. In a separate report dealing with medical inspection of school children, which was started in Galway in January, 1931, Dr. O'Beirne writes that there are 32,174 children on the register. The total number of children examined during the year was 8,087. At first glance, he writes, it would appear that the defects are very numerous, but on analysis it may be seen that most of these are remediable. The percentage of carious teeth was in the region of 50. With the extension of the scheme to the rural areas a marked decrease was noticeable. The percentage under the heading "uncleanliness" was 29.8. With the exception of the convent schools the sanitation left much to be desired, though the majority of the schools were kept as well as possible. In most of the schools inspected the out-offices were of the dry type, and as there was no proper provision made for the sewage discharge, some lavatories were nothing more than open cesspools. Dr. O'Beirne is of opinion that it would be possible to devise a better system of sanitation, and suggests that a conference might be arranged between the Local Government Department and Board of Works officials and county medical officers of health. Hygiene is taught in very few of the schools, and it would be of immense benefit to the community if children were lectured, even once a month, on the elements of this subject. Attention should also be paid to physical exercises and to the introduction of the dual type of school desk.

County Longford New Hospital

The Longford Board of Health has decided to undertake the building of a new county hospital at a cost of £60,000 on the understanding that a grant from the Sweepstakes Fund, amounting to nine-tenths of the cost, will be available. It is also proposed to improve the County Home buildings (used for the aged and infirm and for chronic invalids), and to transfer the fever hospital to the present County Hospital buildings on the other side of the town. For these improvements the Department has agreed to make a grant of three-fourths of the cost. Mr. Lysaght, Local Government Department inspector, in his report, states that accommodation for sixty-five beds is required in the County Hospital, which at present can only hold 42 beds; the hospital is altogether unsuitable. The amount to come from the rates will be £6,000, which can be raised by loan.

CORRESPONDENCE

The Hastings Window in Worcester Cathedral

SIR,—Those who joined in the pious pilgrimage to Worcester at the beginning of the Centenary Meeting must have been immensely impressed with the magnificence of the window which Lord Dawson unveiled to the honour and memory of the founder of our Association. The fineness of the design of the window, the superb colouring of the glass, and the amazing brilliance of the lighting were subjects of general comment by the great company present at the unveiling. Also, it was recognized by all what a perfect position within the Cathedral had been assigned to the Association by the Cathedral authorities for the erection of this votive offering.

There is one remaining drawback to this worthy celebration of Sir Charles Hastings. The window is not paid for. Every member of the Council, and, I believe, every member of the Representative Body, has subscribed one guinea each; many other members of the Association—officers of the Divisions and Branches and of scientific sections, and general members of the Association—have subscribed; but I am saddled with a deficit of £110 odd. The sentimental value of such a memorial is great. I feel sure that so long as Worcester Cathedral stands the Hastings window will be one of the glories of that Cathedral and a constant reminder of the admiration in

which members of the British Medical Association in the year 1932 held the memory of its illustrious founder. Some of that value will be dimmed if the cost of the window be not fully met by the spontaneous offerings of our fellow members. I feel sure that the fact that the window is not fully paid for has only to be known for the balance required to be subscribed forthwith. I shall be most happy to receive and acknowledge contributions to clear up the deficit.—I am, etc.,

N. Bishop Harman,
Treasurer, British Medical Association.

B.M.A. House, Tavistock Square, W.C.1.
October 21st.

Research in Mental Illness

Sir,—Dr. Suttie's letter in your last issue is a very pertinent criticism of the present position of research in mental disease. No doubt the report of the Board of Control may be represented simply as a narrative of the research which is actually performed, and no doubt it may be represented that administrative and staffing difficulties in the average mental hospital make any sort of research outside the laboratory difficult, if not impossible. Yet in view of the fact that the function of the Board of Control is to promote the welfare of the mental patient, their apparent complacency in face of the sort of research that is reported is not a little disquieting.

First, there is a continuous harking back to the outworn theory of a point-to-point correspondence between psychological function and brain anatomy, and to Bolton's unfortunate terminology in describing the psychoses as dementias. I would be the last person to decry the usefulness of the study of neural physiology and pathology, but the evidence that the cortex is a functional unity acting as a whole and not as a patchwork quilt is becoming overwhelming, and ought now to influence research in mental disease.

Secondly, in all the valuable biochemical work that is done in laboratories connected with mental hospitals there seems to be a lack of discrimination between cause and effect. It would seem that as Dr. Suttie says, there is a flight from the patient, and changes in the chemical reactions of the body are too readily assumed to be the causes of abnormal behaviour without due consideration as to whether they may not be comparatively insignificant results of more fundamental functional disturbances.

I am, of course, aware of and am ready to pay homage to brilliant exceptions to these attitudes in British psychiatry, but I fear that they are exceptions and not the rule. It is becoming more and more evident that function determines structure rather than the reverse, and so the importance of the study of behaviour itself, rather than its end-results, should be stressed especially in relation to the early stages of mental abnormality. In view of the fact that it is repeatedly stated that the newly established clinics for early diagnosis and treatment of mental illness ought to be, and indeed must be, staffed by physicians from mental hospitals, it is to be hoped that the Board of Control will see to it that in future reports they will be able to state that facilities have been given for at least some research conducted from a different point of view.—I am, etc.,

R. G. Gordon.

Bath, Oct. 24th.

Sir,—Dr. Ian D. Suttie, in his remarks upon fashion in psychiatric theory raises very important points when he implies that psychological research does not at present enjoy a status equal to that accorded to investigations carried out in relation to the organic aspect of mental disorder. This state of inequality becomes the more marked with the assertion that a great portion of research purporting to be psychological is, in effect, physiological in nature. There appears to be much truth in what he says, and it will serve little purpose to endeavour to refute published facts. It would be more useful to know what are the causes to which this state of affairs is attributable. It is not possible to say that such investigations receive any discouragement from the Board of Control, for that body most clearly stresses its desire for increased psychological research on page 113, Part 1, of the report quoted by Dr. Suttie. One is forced, therefore, to look elsewhere.

I cannot help feeling that the cause resides in a large measure in the effort (hinted at by Dr. Suttie, though differently expressed) to carry the idea of psycho-physical parallelism to such an extent as to make the laboratory the centre for psychological investigations. While it is admitted that certain aspects of behaviour are measurable by suitable apparatus, I think it would be a matter for regret were the findings by such methods to be regarded as the *ultima res*. The new psychology is essentially individualistic in its application, and is in too early a stage of development for attempts at generalization to be made. Undoubtedly the greatest scope for research in this direction lies in the clinical study of the psychoses in the mental hospital, and in the correlation of the results of study of the reactions to environment, etc., outside it. But the cause of the reluctance to accept functional interpretations as aetiological factors lies, I think, deeper. It arises as a consequence of the still lingering reaction against the teachings of those pioneers of the new psychology the mere mention of whose names still excites such marked antipathy and scorn in some minds. This attitude is in great part due to the "hobby-horse" manner in which some hypotheses have been ridden, to the exclusion of all else, and the desire among many of its exponents to insist upon the adoption of hard-and-fast dogma where time can only have allowed for the elaboration of hypothesis.

It seems more than probable that investigations of behaviour will, however, increase, in so far as concerns the mental hospitals, with the development of the following factors:

1. The facilities for early treatment of recoverable types of psychosis afforded by the Mental Treatment Act.

2. The development of out-patient clinics for the treatment of the neuroses.

3. The closer co-ordination of the staff of the mental hospital with that of the general hospital and with the general practitioner.

4. The increase of effort to gain more adequate and reliable history of environment, etc., as a result of organized social work.

5. The formation of clinics under the aegis of the education authorities, whereby greater insight may be gained into the problems of the psychology of childhood and the latest determinants of the neuroses and psychoses.

—I am, etc.,

Charles Davies-Jones.

County Mental Hospital, Newport, Isle of Wight,
Oct. 24th.

Recognition of CO in Blood

Sir,—My experience as medical inspector of mines has shown me that many medical men have difficulty in recognizing the presence of carbon monoxide in blood. I am therefore writing to draw attention to a simple test, originally devised by Dr. Haldane, which I have found very useful for this purpose.

A simple outfit has been made for me by Messrs. Hawksley and Sons, Limited, which consists of three

tubes (one containing blood fully saturated with CO), a pipette, and a smaller tube containing needles.

The test consists in comparing the blood of the patient with normal blood and with blood fully saturated by carbon monoxide. A drop of the patient's blood (obtained from a prick of the finger) is diluted in a narrow test tube with about 100 times its volume of water giving a *depth* of colour equal to that of the fully saturated solution. A drop of normal blood is diluted in a second test tube until the same *depth* of colour is obtained in all three tubes. By placing the test tube containing the patient's blood between those containing normal and fully saturated blood, and comparing the three tints, a rough estimate may be made of the percentage saturation of carbon monoxide in the blood under examination.—I am, etc.,

S. W. Fisher, M.D.,
H.M. Medical Inspector of Mines.

Mines Department, Millbank, S.W.1, Oct. 19th.

Aluminium and Health

Sir,—A report issued by the council of the British Non-Ferrous Metals Research Association on "Aluminium in food: a critical examination of the evidence available as to the toxicity of aluminium," only reached me to-day, although it is dated April, 1932. As three of these reports were delivered at my house by post, I imagine that they are being scattered broadcast among the profession. As far as this report goes it appears to be commendably impartial and unbiased, and will certainly give confidence and satisfaction to all those who find aluminium vessels and utensils convenient for the preservation, serving, or cooking of food. On the other hand, I for one am not impressed by the soundness of the deductions which have been made from the experimental and clinical data recorded in this report. The susceptibility or immunity of any one individual to the effects of chronic poisoning with aluminium or any other metal, or indeed any other substance or food, is not easily proved by laboratory experiments on animals. Exactly the same might be said of the toxic effects of tobacco. I have had long experience of the multiplicity and variability of the symptoms of chronic tobacco poisoning in human beings, but many of these symptoms do not appear until after many years, perhaps twenty or thirty years of intensive tobacco smoking. No laboratory experiments on animals could be devised to prove the possibility of such chronic symptoms arising in the case of human beings.

I have had plenty of evidence, satisfactory to myself at least, of the effects of chronic aluminium poisoning among members of my own family, among my personal friends, and also in the case of a dog, and of several large groups of infants in institutions under my charge. The evidence in these cases has been far too convincing to my mind to be shattered by the sort of argument which is given in the report above referred to. I am quite prepared to admit the soundness of the views expressed by Dr. J. H. Burn, the author of this report—namely, that the symptoms discovered by certain individuals as due to aluminium poisoning may be in reality the result of the effect of mind on body, and that they are in fact psychological reactions to the doctor—in other words, due to "suggestion." I am indeed prepared to accept such an explanation in the case of adults and children of mature age, but I am not prepared to accept it in the case of speechless infants, among whom most of my experiences have occurred, nor yet in the case of the dog. The psychological argument is of course unanswerable in the case of adults, and is naturally a very valuable resource in explaining away clinical evidence. No doubt sceptics will say, in the case of the babies and the dog to which I have referred, that it is not they, but I, who am influenced by prejudices and preconceptions, and that it is I who am under the influence of the psychological urge.

Except in the case of infants, who appear to me to be very susceptible to the acute effects of aluminium poisoning, symptoms do not usually arise in the case of adults until after prolonged exposure to its effects, and only then in the case of certain susceptible individuals. It would be very difficult, if not impossible, to exclude such possibilities by any conceivable laboratory experiments. Although I have as much respect as anyone for laboratory experiments conducted in a scientific spirit by competent observers, I am not in the least convinced by the arguments which are laid down in this report, and I do not intend, on the strength of it, to allow the restoration to take place in my kitchen of aluminium cooking utensils, the scrapping of which has been followed by most beneficial results—psychological or otherwise.

This aluminium question involves many important considerations—human health as well as commercial interests. It is clearly a matter of national importance to arrive at the truth, and for this reason I hope all medical men will approach the subject in an entirely unprejudiced spirit, and will record their observations and experiences so that they may have as wide a reading as, for instance, this report is likely to receive.—I am, etc.,

Eric Pritchard.

London, W., Oct. 19th.

Otitis Media in Sucklings

Sir,—In their letters on the above subject, published in your issues of October 8th and 15th, Mr. Percival Leathart and Dr. James Adam draw attention to an important cause of otitis media—namely, the supine position of the infant during feeding. The matter is worthy of further elaboration. So far as I know, Dr. Pierre Robin of Paris was the first to emphasize the importance of a physiological attitude during suckling. His first paper, published in 1923, was entitled "Descent of the root of the tongue as a cause of embarrassment to naso-pharyngeal respiration." The results of his subsequent researches are all collected in a little volume, *La Glossoptose*, which appeared three years ago.

Dr. Robin states that when the development of the lower jaw is retarded (and mandibular atresia is very common) the root of the tongue lies further back and at a lower level than usual, encroaching upon the lumen of the pharynx and causing symptoms which we commonly regard as due to nasal obstruction. This "glossoptosis" of sucklings is perpetuated by allowing the infant to lie on his back with the head flexed during feeding from the breast or bottle. No other young animal adopts so unnatural a pose. Everyone knows that the calf and the lamb, to mention familiar examples, extend the chin and throw the head back during suckling. The human infant is unable to assume for himself the correct position, and should be held upright by the mother or nurse. The importance of this is realized in many infant welfare clinics and children's hospitals, but the exact reason is not always clearly understood. Briefly stated, it is this: that the supine position during suckling causes or aggravates glossoptosis, and glossoptosis is responsible not only for many cases of otitis media in sucklings, but also for that almost universal disease of childhood which we call "adenoids." The factor of posture in feeding appears to demand from paediatricians and otologists closer attention than it has hitherto received.—I am, etc.,

Douglas Guthrie.

Edinburgh, Oct. 24th.

Surgical Emphysema in Artificial Pneumothorax

Sir,—After reading Dr. Selby's memorandum on surgical emphysema complicating artificial pneumothorax in the *Journal* of October 22nd I came to the conclusion that in this case he had erred as to the underlying cause.

In my experience even very small pleural pockets give considerably higher negative initial manometric readings than those cited in this case, none having been less than −6 on inspiration in inductions which I have performed and witnessed. Indeed, one of the highest negative initial pressures I have encountered (−17, −10) occurred in a case with a pocket which gave pressures of −3, +3 on the introduction of only 100 c.cm. of air. Most authorities with extensive experience of artificial pneumothorax give −5 or −6 as the danger-point below which one cannot be certain that the needle is in the pleural space.

The needle in Dr. Selby's case was probably in the lung, the discrepancy between initial and final manometric readings being explained by the patient's respirations becoming deeper as he became accustomed to the presence of the needle. This would also account for his failure to re-enter the pleural pocket, which, if present, would certainly have given very high positive pressures.

I agree with Dr. Selby that multiple skin punctures are not a satisfactory method of treatment, and, for those doing pneumothorax work who may not have seen the reference, I will mention what seems a rational form of treatment, described by C. C. Browning (*Amer. Rev. Tuberculosis*, April, 1932). The case there reported followed four unsuccessful attempts at induction of pneumothorax, and the treatment adopted consisted of cutting down on the needle tracks and lightly packing the one which was found to be leaking, with completely satisfactory results. Incidentally, though no details are given, the above case also suggests penetration of the lung.—I am, etc.,

Crimicar Lane Sanatorium, Sheffield, Oct. 24th. A. Scott.

The Orr Treatment of Osteomyelitis

Sir,—Towards the close of his interesting paper on acute osteomyelitis (October 22nd, p. 752) Mr. Cecil P. G. Wakeley describes correctly the treatment introduced by Winnett Orr, and then by two comments of his own shows that he has not quite grasped its objects.

His first comment is that "the odour in these cases prevents them from being nursed in the wards, and therefore this treatment can only be carried out where there is liberal balcony accommodation." But Winnett Orr sends all these cases home, reducing the post-operative care to a few out-patient clinic visits, and minimizing the expense to both hospital and individual. Thus this criticism of Mr. Wakeley's is beside the point.

His second comment is that "antiseptic gauze will answer the purpose quite well, and dressings can be carried out every other day." But Winnett Orr's great contention is that the case after the operation is not to be dressed for five or six weeks, and that is why he uses vaseline gauze, which is gradually extruded by the growing granulations. (Antiseptic gauze will not answer the purpose. It becomes soaked in the discharge and plugs up the wound: the vaseline gauze allows the discharge to escape past it on either side.) Winnett Orr does not want the wound dressed frequently, because he wishes to avoid secondary infection, and this is successfully accomplished by the principle of "non-interference with the post-operative wound."

I have not much doubt that if Mr. Wakeley himself were to dress the wound very carefully every other day the chance of secondary infection would be negligible, but in actual practice he would not dress the wound himself. On one day it would be done by the house-surgeon, another day by the sister, on another by the staff nurse, on the fourth day by a bright young dresser, and on the fifth day by a probationer nurse. Sooner or later infection would occur, and the operation have to be done all over again. It was to prevent this that Winnett Orr introduced his treatment, and the results of it are really amazing.

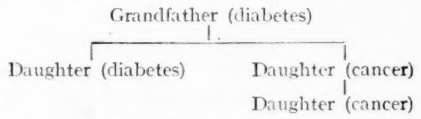
As it has now been adopted all over the world with immense benefit to patients, it would be a pity for its adoption in this country to be retarded owing to a misconception.—I am, etc.,

Paul Bernard Roth,
Orthopaedic Surgeon, North Staffordshire Royal Infirmary.

Newcastle, Staffs, Oct. 22nd.

Diabetes and Cancer

Sir,—Dr. Rowthorne's letter in the *Journal* of October 1st (p. 656), which gives the history of three families with diabetes running through them, is of much interest. It is known that in diabetes there is a hereditary tendency; but this tendency is peculiar in that, as Dr. J. A. Shaw-Mackenzie, in his *Nature and Treatment of Cancer* (1906, fourth edition), and Dr. James Oliver and others have pointed out, diabetes may be not only associated with cancer, but may alternate with cancer, some members of the family seeming to inherit the one disease while other members inherit the other. On this association of cancer with diabetes Dr. Shaw-Mackenzie introduced and based his treatment by trypsin, and the methods for its indirect production in the tissues. In the *Journal of Tropical Medicine and Hygiene* (May 1st, 1930), he gave a very clear example of a pedigree in which cancer ran through three generations in one family, and has recorded cases of the alternation of the two diseases, such as:



In the *Journal* of September 17th, 1932, an article on diabetes at the Mayo Clinic mentions that 840 cases of diabetes were treated in 1930, and, of the causes of forty-two deaths which occurred in these cases, cancer headed the list.

The two diseases seem to be very similar in some ways. In diabetes we know that there is a disorder of certain cells of the pancreas which causes a deficiency of the glycogenic function of the pancreas, resulting in an excess of sugar in the blood, and Shaw-Mackenzie has shown that in cancer a deficient pancreatic lypolytic action is a factor resulting in the well-known excess of unsaturated fatty material in this disease. In cancer, as in diabetes, there is a diminution of the defensive factors, preventing the proper disposal of fats in the one disease and of carbohydrates in the other, and in each case the defect lies conspicuously in the pancreas.

There may be an organism in cancer, large at one part of its life, small enough at another stage to pass through a filter, but this does not affect the issue. In cancer the antibody to the causative and possibly widely spread organism may be a normal product of the ordinary processes of the body, the failure of which may allow of the existence of an organism, or, on the other hand, the presence of an organism may prevent or weaken the antibody's action on injured cells. Nor does it matter whether the induced enzyme action is due to an activator or a catalyst. The point is that Shaw-Mackenzie claims: (1) that his methods give a serum by which (certain

things having been eliminated) a malignant can be distinguished from a non-malignant case—for example, a simple gastric ulcer from a cancer of the stomach; (2) that, based on his discovery of the diminution of the particular enzyme, his method of treatment of cancer by the injection of a soap solution (sodium oleate) and administration of a small amount of bile salts, or other substance which increases the enzyme action, will give beneficial results, removing the offensive smell and pain and retarding the disease. Of course, operation or treatment by radium is not excluded, but he claims that his treatment, as an adjuvant to primary operation, should complete the cure in certain cases and prevent recurrence. It seems to me that the pathogenesis of the two diseases is similar, and that equally satisfactory results should accrue in cancer as have resulted in diabetes.—I am, etc.,

Harrow, Oct. 11th. J. Tertius Clarke.

The Origin of Tumours

Sir,—In the *British Medical Journal* of August 27th Dr. W. E. Gye states that Mr. Lockhart-Mummery has now

"adopted the vague hypothesis supported by Dr. des Ligneris, according to which a filtrate contains an indefinite, unknown, invisible portion of a cell which grows again into a tumour cell. The chromosome explanation, by the way, was originally offered as an easy solution of Dr. des Ligneris's difficulties."

This assertion compels me to say that I never supported such a hypothesis. In my letter, published in the *British Medical Journal* of July 2nd, I advanced the idea (in explanation of the cell-free transmission of the Rous tumour), that "not only whole cells, but also the cell disintegration products, or cell parts, carry the specific character, and are thus the tumour agent or 'virus' of the filterable tumour." I do not believe that, as Mr. Lockhart-Mummery suggests, a gene, a chromosome, or any other part of a cell, whether desiccated or not, can ever grow into a whole cell; but neither do I believe in Dr. Gye's hypothesis of a virus of extrinsic—that is, of non-fowl—origin. I am a great admirer of Gye and Purdy's book, which I have studied very carefully, the more so as I have been engaged myself for several years in experimental work on the Rous tumour. But Gye and Purdy's results can, in my opinion, be explained on the assumption of an originally fowl-borne, though in the course of many generations somewhat altered, agent, thus obviating the very complicated assumption of a threefold agent, consisting of a non-specific factor or virus, a viral element (aggressin) of specific character, and a specific cell element.

As to the mode of action of the Rous agent, I have stated in my letter of July 2nd my belief that

"this cell-borne virus, when entering congenial normal cells [that is, phagocyting mesenchymal cells of the macrophage type] finds there is a suitable medium for self-multiplication and, acting as a slight irritant, it also induces the cells which it has entered [and in which it multiplies, as a virus does] to divide and to multiply."

This seems to me a totally different thing from the "vague hypothesis" which Dr. Gye credits me with. I may add that, if the recent work of Dr. Murphy and his associates in New York is confirmed—it certainly appears well supported by experimental facts—the fowl-borne agent which we inject, and which Murphy believes to be related to the class of "transmissible mutagens," would not be a living substance of the usual extrinsic virus type; it would rather be an enzyme-like substance, which, according to Murphy, would produce a "mutation" of the whole cell, the latter then reproducing or secreting the agent which had been injected into the cell. But, in this connexion, I still adhere, as I said in my letter of July 2nd, to the view of Gye and Purdy, according to which

"this would be the exact reverse of what is known to occur in biology; functional cell activity is found everywhere to be a response to the stimulus of a *deficiency* in the available amount of cell product concerned; a sufficiency of a product always checks the production of a further supply. A cell product stimulating a further production of itself *ad infinitum* is a type of action which seems very improbable indeed."

I would therefore suggest that, in Dr. Murphy's experiments, the non-living, enzyme-like active body is anchored on, or combined with, some living part of the cell, and that this combination then constitutes the real virus-like, independent, intracellular living substance which lies at the basis of a filterable tumour. This cell-borne virus would be self-multiplying within the cell, from which it would be constitutionally different, behaving thus, for all practical purposes, to a large extent as an ordinary virus of extrinsic origin. I think that this hypothesis is able to offer an explanation for all the facts known about filterable fowl tumours, and that it has the advantage of allowing one to view the Rous tumour as a part of the great family of neoplasms; for, to adapt, as Dr. Gye does, the extrinsic-virus theory of cancer to mammalian tumours seems to me an impossibility. Not only does the whole clinical and histological pathology of spontaneous malignant tumours differ totally from that of diseases due to viruses, but we are often unable to establish a clear-cut delimitation between hyperplasia and benign tumours and still less between benign and malignant tumours. Surely, even Dr. Gye would not suggest that hyperplasia and benign tumours are all due to extrinsic viruses!—I am, etc.,

M. des Ligneris, M.D.,
Research Pathologist, South African Institute for Medical Research.

Johannesburg, Sept. 28th.

*** We publish Dr. des Ligneris's explanation because he sent it from South Africa before the correspondence on this subject had been closed.

Vaginal Flora in Children

Sir,—The infrequency of the pneumococcus in the vagina of London children of the hospital class, mentioned by Mr. Barrington-Ward in his paper published in your issue of October 15th, is shown in the results of an investigation undertaken last year by kind permission of Dr. Nabarro. (The laboratory work was done at University College Hospital Medical School.)

Out of seventy-one consecutive cases, aged 1 to 11½ years, of (what proved to be) non-gonorrhoeal vaginal discharge sent to the venereal diseases clinic at the Hospital for Sick Children, Great Ormond Street, the pneumococcus was found in one child only. There was nothing unusual locally in this case, but the child was listless, sweating, and losing weight. There was redness of the vulva, with papules on the surrounding skin and a small amount of whitish discharge. This had been occurring for two years, and followed an attack of "worms." The organism was of Type IV, and lethal to a mouse.

Haemolytic streptococci were found in ten of the seventy-one cases; other non-bile-soluble streptococci in fifty-one; and anaerobic Gram-positive cocci in nineteen.

The comparative rarity of the pneumococcus in this series confirms the opinion expressed by Nabarro in 1925 (*Proc. Roy. Soc. Med.*, xviii, 58) that in the past other diplococci and short-chain streptococci may have been mistaken for the organism in question.

The other organisms found in these seventy-one cases may be of interest; and it is a little surprising that the

peritoneum is so seldom invaded apparently by the vaginal route when the nature of some of them is considered.

Besides five cases from which various unclassified bacteria were isolated, twenty-four grew staphylococci (two *S. pyogenes aureus*, one in pure culture), four produced rods having the cultural characteristics of *B. welchii*, eighteen gave *B. coli communis*, while eighteen gave non- or late-lactose-fermenting Gram-negative bacilli. Of Gram-positive rods, one case showed a non-virulent *C. diphtheriae*, and nineteen grew organisms which were grouped by their fermentative reactions as diphtheroid (though distinguishable from *C. diphtheriae* by their colony formation), twenty-six as xerosis, and nine as of Hoffmann type, while two were unclassified.

In two cases the vagina was sterile, but each had been syringed with an antiseptic solution within the preceding six hours.

Four children convalescent from other diseases, but with no vaginal discharge, were examined in the wards of University College Hospital, with the following results: pneumococci were not found in any of the cases, streptococcci in two, *Staphylococcus albus* in three, xerosis type in three, Hoffmann type in four, *B. coli* in one, Gram-negative rod in one.

—I am, etc.,

ERNEST A. WOOD, M.D., M.R.C.P.

St. Leonards-on-Sea, Oct. 21st.

Obituary

Dr. BERNARD O'CONNOR of Old Square, Lincoln's Inn, who died on October 7th at the age of 83, received his medical education at Cork, Dublin, Edinburgh, and St. Mary's Hospital, London. He graduated M.D., M.Ch., L.M. (R.U.I.) in 1872, became M.R.C.P. in 1880, and obtained the D.P.H. in 1893. He had held the appointment of physician to the North London Hospital for Consumption (Mount Vernon), was consulting physician to the Convent of Refuge, and physician to the Westminster General Dispensary. He had been a pupil of Lord Lister, and was one of the first to demonstrate the new methods in a London hospital. He was the author of a book on the antiseptic treatment of surgical wounds, with special reference to carbolic acid, and of various papers in medical periodicals. Another direction in which he was a pioneer was the open-air treatment of pulmonary tuberculosis. He was subsequently called to the Bar, practising at the Old Bailey and at the Middlesex, Westminster, and other sessions. He was also a member of the Irish Bar. In 1895 he stood as Nationalist candidate at the West Birmingham parliamentary election against Mr. Joseph Chamberlain, having previously contested the Western Division of Clare. In the British Medical Association he was for some years an active member of the Metropolitan Counties Branch, and of its committees. He came to the fore as a debater, especially at the time of the discussions on the National Health Insurance Bill.

We have to announce the death, on October 13th, of Dr. D. M. MACLEOD of Wakefield. Dr. Macleod was a bachelor, and was educated at Tobermory Public School and Watson's College, Edinburgh. He had his medical education at Edinburgh University, and obtained the M.B. in 1900. He was medical officer to the P. & O. Line for two years, and then succeeded his uncle, Dr. MacArthur, in general practice in Wakefield, where he spent the remainder of his life.

After some years of ill-health, which somewhat crippled his activities, Dr. D. HETHCOTE died at his home in Darlington on October 9th. Douglas Hethcote was born in 1872, and passed through his medical training at Newcastle-on-Tyne, graduating M.B., B.S.Durham in 1899. For some time subsequently he practised at Newsham, near Barnard Castle, where he won many a friendship among the farming community. He was a civil surgeon in South Africa during the Boer war, and was for several years assistant to Dr. J. Waldy, who then practised at Catterick. For the last twenty-four years Dr. Hethcote had resided in Darlington, and he took part in the activities of the British Medical Association in that Division until failing health prevented him. He earned and gained the respect of all his colleagues.

The following well-known foreign medical men have recently died: Dr. MAURICE NICOLLE, professor at the Institut Pasteur and formerly director of the laboratory of microbiology at Constantinople; Dr. FRITZ STEINMANN, professor of the surgery of accidents at Bern, aged 60; Geheimrat Dr. JOHANN OELLER, formerly professor of ophthalmology and director of the eye clinic at Erlangen, aged 82; and Professor S. E. SOKOLOV, director of the surgical clinic at Odessa.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on October 21st the following medical degrees were conferred:

M.D.—*F. H. McCay, *E. A. Hawke Grylls, T. S. Goodwin.

M.B., B.CHIR.—*F. H. King, *R. B. Pringle, *J. H. Bentley, W. McO. Macgregor, V. T. Thorne, C. S. Lewis, W. McN. Niblock, C. E. Taylor.

M.B.—*E. B. Murrell, B. C. Nicholson, R. A. Jones, D. J. R. Steen.

B.CHIR.—*J. L. S. Scott, *M. Westwood, W. W. Sargant.

* By proxy.

UNIVERSITY OF GLASGOW

A congregation was held on October 22nd, when the following degrees were conferred by the Vice-Chancellor, Principal R. S. Rait:

M.D.—J. G. Graham, A. Markson, A. G. Mearns, J. H. Wright, W. H. Watson, J. M. Henderson.

CH.M.—J. G. Harrower.

M.B., CH.B.—The list of recipients of the M.B., Ch.B. degrees was printed in our issue of October 15th (p. 735).

The Brunton Memorial Prize, awarded to the most distinguished graduate in medicine for the year 1932, was gained by W. M. Nichols.

The West of Scotland R.A.M.C. Memorial Prize, awarded to the candidate with the highest aggregate marks in medicine, surgery, and midwifery in the Final M.B., Ch.B. examination held during 1932, was gained by A. C. Lendrum.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At the annual meeting, held on October 19th, the following officers were elected: *President*, Mr. John W. Dowden; *Vice-President*, Dr. J. Haig Ferguson; *Secretary and Treasurer*, Mr. John Wm. Struthers; *Representative on the General Medical Council*, Mr. Alexander Miles; *Convener of Museum Committee*, Dr. Arthur Logan Turner.

The following twenty-nine successful candidates, out of ninety-seven entered, have been admitted Fellows:

Deborah M. Alcock, N. J. Bakhru, W. S. Brindle, J. H. Casewell, C. G. Crawford, R. Everett, J. A. C. Fleming, Isabella Forshall, I. Goldberg, J. I. R. Gray, T. E. Holland, R. McK. Honey, J. J. Jennings, Phyllis I. Kaufmann, H. Kaye, K. Knowles, R. B. Lumsden, H. I. McClure, H. M. Martin, C. F. Mayne, J. J. O'Reilly, R. J. Parry, C. O. F. Rieger, E. Sandner, D. P. Settna, L. A. H. Snowball, J. S. Sutherland, B. Than, G. E. Waterworth.

CONJOINT BOARD IN SCOTLAND

The following candidates have been approved at the examinations indicated:

FINAL PROFESSIONAL.—M. D. S. Jayawardana, K. W. Harcourt, D. McN. Beaugie, A. McN. Aitken, A. B. Morrison, R. D. Johnston, R. L. Sutton, V. T. Naidu, D. Cameron, S. D. Senapathi, T. D. L. Bolan, A. Muir, M. G. Naidoo, J. Ossip, A. Macdonald, M. A. Abdalla, G. R. Tisseveresinghe.

DIPLOMA IN PUBLIC HEALTH.—D. M. Alston, Elizabeth R. Jamieson, Jessie M. Jamieson, J. L. Hunter, J. Comrie, Jessie R. Wilson, A. St. J. Moffat. (*Part I*): T. K. Kuruvila, H. Caplan, R. A. Read, Barbara C. Welsh, A. C. Scott, Jean W. R. Paton, Rachel B. Nelson, M. D. Macqueen, W. M. P. McDonald, J. L. Smith. (*Part II*): J. F. Hamilton.

Medical Notes in Parliament

[From our Parliamentary Correspondent]

The Ottawa Agreements Bill was introduced this week in the House of Commons, and debate on the second reading began. The final resolutions were carried through the report stage. A vote of censure on the Government for its policy on unemployment and the means test was defeated.

The Edinburgh Royal Maternity and Simpson Memorial Hospital (Transfer) Bill, an unopposed measure, came before the Examiners of the House of Commons, and was found in order.

Sir J. Gilmour states that the question of legislation in regard to hours of young persons in shops is under consideration, but he cannot at present make any statement on the matter.

Dr. Elliot states that the Milk Reorganization Commission is considering its recommendations, and its report is expected to be available before the end of the year.

The Parliamentary Medical Committee met at the House of Commons on October 20th; Sir Francis Fremantle was in the chair. The Committee passed a resolution congratulating Dr. Walter Elliot on his appointment as Minister of Agriculture, and intimated its readiness to co-operate in any parliamentary action regarding milk supplies. The committee also congratulated Dr. J. H. Morris-Jones, who has been appointed a Government Whip.

The Parliamentary Medical Committee has decided to invite other M.P.'s interested in public health to attend an address on the subject, to be given to the committee next week by Sir Walter Fletcher. Other addresses which the committee hopes to arrange may also be opened to lay M.P.'s.

Sir Francis Fremantle was last week appointed president of the Milk Recording Societies of England and Wales.

Ottawa Agreements: Cod-liver Oil

During the debate on the Ottawa resolutions in the House of Commons on October 24th, Mr. Rhys Davies moved an amendment to omit the proposed duties on the following oils: castor, linseed, coco-nut, ground-nut, rape, and sesamum. He asked why the Government was so drastic in putting 1s. 4d. a gallon on cod-liver oil. The population affected by cod-liver oil was very largely consumptive. Local authorities spent enormous sums of money in buying this commodity in bulk for their sanatoriums, and they were very apprehensive that their expenses would be considerably increased. Cod-liver oil was supplied in very large quantities under the national health insurance scheme, and a great deal of the money spent by approved societies for the medicine in respect of 17,000,000 insured persons was spent on cod-liver oil.

Mr. McKeag, in supporting the amendment, said that many a child in the North Country owed its life to being able to obtain cod-liver oil. The proposed tax could have no other result than to increase the price of this oil to the poorer people.

Mr. H. Williams said that this country was a large cod-liver oil producing country, and last year 5,000,000 hundredweights of codfish were landed on our shores. These fish were cleaned when caught, and the livers taken apart. If the livers were boiled immediately they would give medicinal quality cod-liver oil, and in some cases boilers for that purpose were provided on the trawlers. The practice in this country in the past had been to a large extent, in the case of trawlers going long distances, to wait until they reached shore before boiling the livers, which were then rather stale. That produced oil of an industrial quality, which had high medicinal qualities but was not pleasant to the palate, and was therefore mainly used for cattle, and was not given to children. The amount of the duty was 4d. a quart, and to the consumer it would be not more than 4 or 5 per cent. All that was wrong with our own production was that we were producing relatively too much industrial and not enough medicinal cod-liver oil.

Mr. Mallalieu said that in its issue of October 15th the *Lancet* stated that year by year it was made clearer that the diet of the poorer classes—if not the richer—was not the balanced diet advised by the textbooks. Report after report on rickets, dental caries, maternal mortality, and infectious diseases emphasized the importance of taking fresh foods, or, if those were too expensive, of cod-liver oil.

Dr. Burgin, replying for the Government, said there were two points with regard to cod-liver oil which the Government had to meet. The first was the retail price of the ordinary quantity of cod-liver oil required for consumption by children and patients in hospitals. The normal method of selling cod-liver oil was in an eight-ounce bottle or some other regular standard bottle. There was no evidence in the possession of the Government that would lead one to think that the price was going to be increased. It was also advised that the increase in price to any individual farmer for oil for cattle feeding was likely to be quite insignificant. Those two comments broadly disposed of the whole of the case that was made with regard to cod-liver oil.

The amendment was rejected by 264 votes to 64.

Disposal of Residue from Milk Factories.—In reply to Sir Cooper Rawson, on October 20th, Mr. Baldwin said important results had been obtained in experiments at Rothamsted under the auspices of the Department of Scientific and Industrial Research regarding the discharge into rivers of the residue of fats in water from milk factories and dairies. This research, which was not complete, was part of the programme of the Water Pollution Research Board. There was good reason to believe that milk effluents could be rendered innocuous by filtration methods. The main problem remaining was to discover an economical method of getting rid of fatty film which accumulated on top of the filter bed.

A "Remedy" for Tuberculosis.—Sir Cooper Rawson asked the Minister of Health, on October 20th, whether he would institute an official inquiry into the merits of the treatment for tuberculosis known as "umckalaobo." Sir Hilton Young repeated his previous answer that the claims made on behalf of this preparation did not appear to differ in character or degree from many other so-called remedies which had been advertised from time to time and afterwards were found to be valueless; he did not propose to institute an official inquiry. He added that consideration had been given by officers of the Ministry, not by a committee, and that he himself had also carefully considered the matter.

Treatment in Disease due to Service.—On October 25th Mr. Crooke asked the Minister of Pensions if he was aware that disabled men were being refused treatment by the Ministry for disease which had at one time been accepted as attributable to service. Major Tryon replied that wherever it was established that the present condition of a previously accepted disability attributable to or aggravated by war service was due to such service, any special course of treatment certified to be necessary was provided.

Restrictions on Importation of Parrots.—In reply to an inquiry by Mr. Turton, on October 20th, concerning the restrictions on the importation of parrots, Sir Hilton Young said that some 125 cases of psittacosis were reported in the United Kingdom before the present regulations came into force, and four had been reported since. Further cases of this disease had recently occurred in the United States of America and on the Continent, and the Office International d'Hygiène recommended the maintenance of existing restrictions. He could not at present relax or revoke the regulations in force in this country. To readmit a parrot or a parakeet which had been taken out of this country would be as bad as an initial admission.

Notes in Brief

A report recently made to the Ministry of Health and the Board of Education, on the conditions of the deaf and dumb, will shortly be published.

The Services

R.A.M.C.: COLONEL COMMANDANT

The King has approved the appointment of Major-General O. L. Robinson, C.B., C.M.G. (retired pay), late R.A.M.C., as Colonel Commandant R.A.M.C., in succession to the late Lieut.-General Sir Charles H. Burtchaell.

DEATHS IN THE SERVICES

Lieut.-Colonel Henry Jagoe, R.A.M.C. (ret.), died in London on October 5th, aged 87. He was born in County Cork on November 8th, 1844, and was educated at Trinity College, Dublin, where he graduated as M.B. and Ch.B. in 1867. Entering the Army as assistant surgeon on October 1st, 1867, he became surgeon on March 1st, 1873, when the rank of assistant surgeon was abolished, and surgeon major on October 1st, 1879, retiring with an honorary step as brigade surgeon on October 26th, 1887. He served in the Afghan war in 1878, was mentioned in dispatches and received the medal, and in the Zulu war of 1879, receiving the medal and clasp.

Lieut.-Colonel Alfred Paul Hart, R.A.M.C. (ret.), died at Burnham-on-Sea, Somerset, on October 6th, aged 75. He was born on November 25th, 1856, and was educated at Aberdeen, where he graduated as M.B. and C.M. in 1879, also taking the M.R.C.S. in 1880. Entering the R.A.M.C. as surgeon on February 5th, 1881, he became lieutenant-colonel after twenty years' service, and retired on December 6th, 1902. He served in the South African war from 1899 to 1902, and received the Queen's medal with three clasps, and the King's medal with two clasps. He also rejoined for service in the war of 1914–18, from May 22nd, 1915.

Medical News

At the annual dinner of the Royal Society of Medicine, to be held at the May Fair Hotel, Berkeley Square, W., on Thursday, November 17th, at 8 p.m., Sir Thomas Barlow will be presented with the gold medal of the society. The toast of "The Royal Society of Medicine" will be proposed by Sir Hilton Young, and Sir William Rothenstein will respond for the guests.

The annual dinner of the Society of Medical Officers of Health will be held at the Hotel Victoria, Northumberland Avenue, W.C.2, on Thursday, November 17th, at 7.15 p.m.

The annual meeting of Fellows and Members of the Royal College of Surgeons of England will take place at the College, Lincoln's Inn Fields, W.C., on Thursday, November 17th, at 3 p.m.

The annual Manchester medical dinner will be held in the Grand Hotel, Aytoun Street, Manchester, on Wednesday, November 23rd. Tickets (price 15s. 6d) can be had on application to Mr. K. J. O'Connor, honorary secretary, Medical School, Manchester.

At the meeting of the Royal Sanitary Institute to be held at 90, Buckingham Palace Road, S.W., on Tuesday, November 8th, at 5.30 p.m., discussions on cyanide fumigation of ships will be opened by Mr. J. D. Hamer, and on the control of insects on foodstuffs and other raw materials by fumigation, by Professor J. W. Munro and Dr. A. B. P. Page.

A general meeting of the Caledonian Medical Society will be held at B.M.A. House, Tavistock Square, London, on Wednesday, November 23rd, at 2.30 p.m., when the president, Dr. John Matheson, will give his address. The annual dinner will be held afterwards in the May Fair Hotel, Berkeley Street, W., at 7.30 p.m. Members intending to be present at the dinner must inform the London secretary, Dr. A. Cumming Grant, 122, Bedford Court Mansions, W.C.1, before November 16th.

The Biochemical Society has arranged the following meetings for 1932–3: November 18th, London School of Hygiene and Tropical Medicine; December 16th, the Laboratories, Messrs. J. Lyons and Co.; February 17th, Lister Institute; March 17th, University College (annual general meeting).

The Royal Society of Tropical Medicine opened its new session on October 20th with a demonstration and papers. On Thursday, November 17th, a clinical and laboratory meeting will be held at the Hospital for Tropical Diseases, Endsleigh Gardens, W.C., at 8.15 p.m. Meetings will take place monthly, and the session ends with the annual general meeting on June 15th, 1933.

Dr. R. G. Canti will give a cinematograph demonstration on the cultivation of living tissue cells, at the Royal Institution, 21, Albemarle Street, on Friday, November 18th, at 9 p.m.; and Dr. E. N. da C. Andrade will give a course of lectures on rays and radiations on Tuesdays, from November 1st to 22nd, at 5.15 p.m.

A course of post-graduate lectures will be given at the Paddington Green Children's Hospital on Sunday mornings from November 6th to December 18th inclusive. Two lectures will be given at each session. The fee for the course is £1 1s.; individual lectures may be attended.

The third of a series of lectures on renal disease, arranged by the Fellowship of Medicine and Post-Graduate Medical Association, will take place at 11, Chandos Street, W., on November 1st, at 4 p.m., when Dr. Arnold Osman will lecture on nephritis and nephrosis; these lectures are free only to members of the Fellowship. There will be a course in practical pathology at the Brompton Hospital from November 10th to December 1st, on Thursdays from 11.45 a.m. to 1 p.m. The course will deal with laboratory methods and the interpretation of results, and arrangements will be made for members of the class to perform the tests themselves. The second of three demonstrations on clinical pathology, especially suitable for M.R.C.P. candidates, will be given at 10, Bedford Square, W.C., on November 2nd, at 8.30 p.m. There will be a demonstration of selected cases of general interest at the Lambeth Hospital, Brook Street, S.E., on Friday, November 18th, at 2 p.m. Six lecture-demonstrations on diagnosis and treatment of chronic rheumatism will be given at the British Red Cross Clinic for Rheumatism, Peto Place, N.W., on Tuesdays and Thursdays from November 22nd to December 8th, at 8.30 p.m. A course in medicine, surgery, and gynaecology will be held at the Royal Waterloo Hospital from November 7th to 26th.

The freedom of the municipal borough of Morecambe was conferred on October 20th upon its medical officer of health, Dr. J. W. Watterson, who is also a county alderman of Lancashire. He is the third to receive this distinction, his immediate predecessor on the roll being Mr. Lloyd George.

The new extension to the Royal Victoria and West Hants Hospital, Bournemouth, was opened by H.R.H. Prince George on October 19th. It provides a new out-patient department, operating theatre, and specialist departments, in addition to beds for paying patients with limited means. The extension has cost £120,000, and it was announced that only £14,000 remained to clear the building from debt. Such a result, Prince George said, reflected great credit on Bournemouth and the surrounding area, inasmuch as it was only five years ago that the Prince of Wales inaugurated the fund for the construction and equipment of the building.

The annual meeting of members and the council meeting of the International Society of Medical Hydrology were held in Paris on October 16th, at the conclusion of the International Rheumatism Congress, which had been attended by a large number of its members from many countries, including South Africa and the United States of America. In the absence of the retiring president, Professor Thayer (Baltimore), the chair was taken by the president vicegerent, Dr. van Breemen (Amsterdam), until the election of the new president, Dr. Paul Ferreyrolles (La Bourboule and Paris). On the retirement of Dr. C. W. Buckley (Buxton) as treasurer, Dr. Lionel Calthrop (Radlett, late of Harrogate) was elected in his place. It was decided to hold the next business meeting of the society at Toulouse in October, 1933, at the time of the Congrès International d'Hydrologie, and the next scientific meeting at Zürich in January, 1934.

The inaugural meeting of the Abernethian Society of St. Bartholomew's Hospital will be held in the Medical and Surgical Theatre of the hospital on Thursday, November 3rd, at 8.30 p.m., when Lord Moynihan will give an address on "Medicine and surgery in ancient times."

At the first French Congress of Gynaecology, held at the Paris Faculty of Medicine on October 3rd, under the presidency of Dr. F. Jayle, Professor Recasens, dean of the Madrid Faculty of Medicine, read a paper on the progress of gynaecology during the last fifty years, and Drs. Jayle and Hallion discussed the relation between the hypophysis and the ovary.

The third Public Health Congress and Exhibition, under the presidency of Sir E. Hilton Young, M.P., Minister of Health, will open at the Royal Agricultural Hall, London, N., on November 14th, and continue for six days. The exhibition will be representative of firms specializing in the various requirements of health services, and will provide an opportunity for delegates to see the latest apparatus and equipment for use in their respective departments. A special type of demonstration roadway is being laid down on the premises upon which street-cleaning and other vehicles will carry out various evolutions. The congress, which is organized by a council of representatives from the leading associations of local government, will be the occasion for the discussion of, amongst others, the following subjects: housing, infant welfare, smoke abatement, fumes from motor vehicles, occupational therapy in mental hospitals, physical treatment, water supply, sewage, public cleansing, nursing, and preventive medicine. The exhibition offices are 13, Victoria Street, S.W.1. All inquiries should be sent to that address.

The Parliamentary Secretary to the Ministry of Health, Mr. G. H. Shakespeare, M.P., has appointed Mr. Kenneth McGregor to be his private secretary.

Numerous cases of typhus have recently occurred in the suburbs of Vienna.

The number of persons in Germany who committed suicide in 1930 was 17,880, as compared with 16,115, 16,036, 15,974, and 16,480 in the previous four years.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the *British Medical Journal* are MUSEUM 9861, 9862, 9863, and 9864 (internal exchange, four lines).

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MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Seborrhoea of the Scalp

"E. S. C." writes: I should be grateful if any fellow practitioner could suggest a remedy for a female patient, aged 12 years, who suffers from excessive oiliness of the scalp and hair. The usual remedies have been tried without success.

P.U.O.: ? Diagnosis

Dr. JOHN SMITH (Maidstone) writes: I should be grateful if any member could suggest a diagnosis and treatment in the case of an old lady (73) who has been running a temperature of 98.6° to 99.8° for over two months. The temperature has proved resistant to the usual salicylates, aspirin, quinine, and iodine compounds. There is no obvious focus of sepsis. The urine is normal chemically, and sterile bacteriologically. The faeces are normal. The blood count is normal for red and white cells. Widal's test is negative. The pulse rate varies from 84 to 96, and the patient complains simply of fatigue and capricious appetite.

Olive Oil

"G.P." inquires about the medicinal qualities of olive oil. Is it beneficial in colon troubles? If given after food, does it not counteract the effect of the hydrochloric acid in the stomach, which is so essential for the proper digestion of food in the small intestine?

"Ferri Perchlor." in Skin Disease

Dr. F. CORY (Leeds) writes: I was interested to notice (*Journal*, October 8th, p. 698) that my suggestion (April 23rd) has been forstalled by Dr. J. H. Garrett, who advocated ferri perchlor. in ringworm of the scalp only. Sixty years ago I first used perchloride of iron as an application in dogs suffering from mange, with rapid cure. I should be glad to hear from any of your readers the result of the application of ferri perchlor. fort. in other skin diseases.

Softening the Beard

"J. H. B." writes: If "W. B. D.," in spite of incredulity, will try cold water (which does not make the skin tender, while it softens the skin just as well as hot if the lathering be prolonged and thorough) and a heavy razor of the first quality, stropped on a Worth strop (consisting of sections of leather set on edge, and procurable at 351, Oxford Street, London), he will, I believe, obtain the best shave possible.

Income Tax

Use of Car

"M. R. S." inquires what income tax deductions are allowed to a doctor "who buys and uses a car for his profession."

*** No deduction is due for the original cost of acquiring the car as that expenditure is capital outlay. But an annual deduction can be claimed for the depreciation arising from wear and tear, usually reckoned at 20 per cent. of the cost price in the first year, and thereafter on the value as written down by the allowances. All running costs, petrol, oil, tyres, repairs, etc., are allowable, as are also general charges, licence and insurance costs, and the expense, if any, of garaging the car. It should, however, be borne in mind that if the car is used for private as well as professional purposes some deduction has to be made from the total to arrive at the allowable amount. Usually that deduction is calculated at a percentage of the total—say, 15 to 20 per cent., etc.

Allowance for Obsolescence

"P. S." is allowed £110 per annum for motor car expenses, to include depreciation. His present car was bought on July 1st, 1929, and he is now selling it for £30 and buying a new one for £230. What additional claim can he make?

*** He should make a claim for "obsolescence allowance" in respect of the old car, the amount of the claim being regarded as a professional expense of the current year, and therefore as affecting the income tax liability for the next financial year—1932-3. The claim should be calculated as follows: if £x was the cost of the original car and £y the aggregate of the depreciation allowances for 1930-1 and 1931-2, then the amount of the obsolescence claim is £x − (£y + £30). For 1932-3 the "depreciation" allowance should be 20 per cent. of £230 = £46.

Change of Office or Employment

"University Teacher" inquires what effect, if any, promotion from lecturer to professor will have on the basis of liability to assessment.

*** The relevant section of the Income Tax Acts—Section 45 of the Finance Act, 1927—does not deal specifically with "a change," but separately—that is, under Subsection (5), "where a person ceases to hold an office or employment," and under Subsection (4), where "the person

first holds the office or employment." Applying this principle to the facts of this case, it would seem that, even though there may have been continuity in point of time, our correspondent did cease to hold the office of lecturer, and subsequently first held the office of professor in the year when the change took place. On that footing the change disentitled him to maintain the previous year's earnings basis during the first year of his professorship. It is understood that in practice the Inland Revenue Department do not take note of minor changes in status which do not involve substantial increases in remuneration, but that would seem to be concessionary only, and apparently would not assist "University Teacher."

Motor Car Deduction : Salary

"D. M. M." inquires what is the recognized practice in respect of the replacement of motor cars by medical men holding appointments and assessed (under Schedule E) for the salary received.

*** The most satisfactory course is to claim "depreciation," which gives an annually reducing allowance, and when the car is replaced to make a supplementary "obsolescence" claim for the allowance of that part of the cost which has not been covered by the aggregate depreciation allowances. An alternative is to claim the actual cost of replacement when it occurs, but that cannot be done for any year for which a depreciation allowance is received.

Cash Basis or Bookings

"T. B. E." explains that his liability is "computed on a cash basis," but last year the inspector of taxes inquired the amount of his outstanding book debts, and "T. B. E." "paid tax on it." This year the inspector is making a similar inquiry. Will not this lead to double payment—once on book debts and again on the cash when received?

*** We think that the basis of "T. B. E.'s" assessment last year was the *adjusted* cash basis—that is, the cash profit increased by any rise or decreased by any fall in the outstanding book debts—which would be correct. If so, there is no objection to supplying the information asked for, provided that the inspector will send our correspondent in due course a note explaining what has been the effect, if any, of the application of that figure to the computation of liability.

Assessment of Reduced Salary

"A. R." has suffered an "economy cut" in salary. He regards it as a purely temporary measure, and asks whether it will weaken his position in that respect if he accepts an assessment to income tax on the reduced figure.

*** No. Some time ago when there were a number of cases of *voluntary* surrender or refund of part of the salary due the income tax authorities accepted the view that tax should be borne only on the net amount of the salary. "A. R." could always plead that precedent if the point were raised against him, which in any case would seem most unlikely.

LETTERS, NOTES, ETC.

Carbonic Acid Gas for Children

Dr. J. Dunlop (Shettleston, Glasgow) writes: At the risk of overweighting an already heavy maternity kit I recently purchased a small apparatus made on the "sparklet" system for delivering small quantities of CO_2 gas to newly born children in need of resuscitation, and have been agreeably surprised to find the immediate response of many such to a very small supply of the gas. Some weeks ago, however, I found another use for the apparatus which may interest fellow practitioners. A baby 8 weeks old took whooping-cough, and after about ten days the kinks became so severe that each one looked as if the termination would be fatal. After a few preliminary coughs cyanosis became very marked and breathing seemed to be altogether suspended. In despair about being able to do anything to relieve the condition I brought the sparklet into play and there was an immediate end to the dyspnoea and the cyanosis. The kinks were about two hourly for three days, and the parents were left with the apparatus and two spare cylinders of the carbon dioxide. As each seizure came on, a little gas was sprayed on the child's face, with results that can only be described as wonderful. Not only were the attacks trifling after the gas was used, but the duration of the disease seemed to be cut much shorter. There are probably many other conditions where a similar use of the apparatus would be helpful, and there may be many practitioners finding varied use for it, but it certainly seems to me to be a most useful addition to the usual kit of the working practitioner.

"Avalanche of Circulars"

"X. M. D." writes: Is it possible for the Association to take any steps to draw the attention of manufacturing chemists and others to the nuisance of the daily avalanche of circulars, etc., which falls on members of the medical profession? I am not exaggerating when I say that a not inconsiderable additional burden is imposed on my domestics by the constant clearing away and burning or otherwise disposing of the rapidly filling waste-paper baskets in my house. From an advertising point of view I am sure that the means employed defeat their own ends. We all want to make ourselves conversant with any recent advances which manufacturers may have made, but I find that, with my time pretty fully occupied, it is impossible for me to make any attempt to read the piles of literature which descend upon me; the result is that most of my circulars go straight into the waste-paper basket unopened. Some of them, too, are illustrated, and generally got up in a way which must have put the producers to some expense. I feel sure that if manufacturers advertised their wares with less verbosity medical men would be far more likely to pay attention.

Koch's Discovery

Dr. J. W. Springthorpe (Melbourne) writes: Sir Robert Philip's address in the *Journal* of July 2nd on Koch's discovery of the tubercle bacillus recalls many antipodean memories of the fate of reformers and the misuse of their discoveries. I was one of the 4,000 medical men that flocked to Berlin in 1890, even from distant Australia, and on my return published, during the next six years, five reports, two progress reports, *Eighteen Months' Experience, Illustrations of the Diagnostic Value and of the use of Tuberculin*, until resolutions were carried at the Inter-Colonial Medical Congress in 1896, and a "Plea for the re-use of tuberculin" was made in the *Glasgow Medical Journal* of November of the same year. As Sir Robert well says, Koch deserves all the glory of having laid the solid foundations on which the rest has been built, and so was the master mind that proved infectivity and attempted the previously untried cure. It was no fault of his that absurd dosage made "black puddings" of the lungs, or that diagnostic value was overwhelmed, amidst serious therapeutic mistakes, or even that sanatoriums replaced (amongst both the profession and the public) the key to prevention which Nature had provided in personal health, thus forgetting that even the efficient cause—the germ—and the exciting cause—anything which gives the germ a start—may be as nothing compared with "the soil," which, after all, is the fundamental that permits, or prevents, the growth of "the crop."

Bismuth and Spirochaetes

Dr. W. L. English (Crewe) writes: In the *Journal* of October 15th (p. 732), Dr. Auld mentions Kolle's statement that a depot of bismuth will protect rabbits from infection by spirochaetes. If this holds good in the human subject, it would seem as though the control of yellow fever in Europeans in West Africa is not insoluble.

"To Run Like a Lamplighter"

The Duchess of Bedford writes: Your reviewer (October 22nd, p. 757) is evidently not middle-aged if he has not heard the above expression. Probably someone else will have told him that in the days when street lamps were lit by hand the lamplighter rested his ladder on a cross-bar of the lamp, provided for the purpose, and ran up it.

We are asked to correct a mistake in the advertisement columns of last week's issue (p. 12). Packages of catarrh "cold" serobacterin (mixed Mulford) are supplied as follows:

M 104-00	Br. four 1 c.c. phials A B C D per package	18/-
M 104-9	Br. *one* 5 c.c. phial strength D " "	14/6
M 104-4	Br. *one* 20 c.c. phial strength D " "	31/3

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 44, 46, 47, 50, and 51 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 235.

'Allonal' Analgesic and Hypnotic for Pain & Insomnia!

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